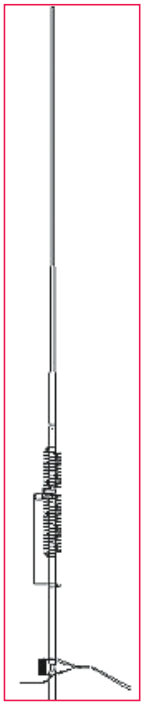
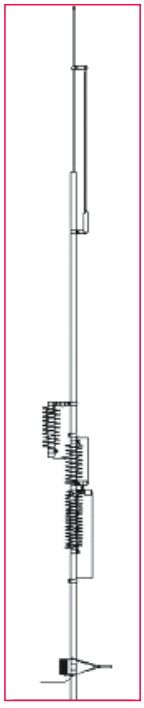
butternut

BNR-3X10


BUT-HF2V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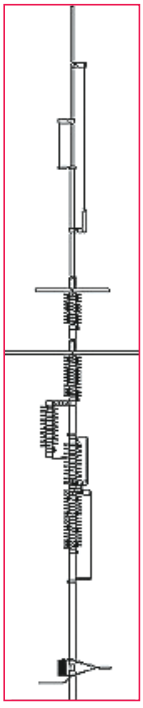

BUT-HF9V

Vertical and Yagi Antennas

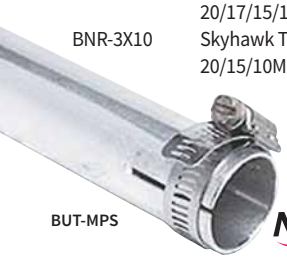
Butternut antennas have a well-earned reputation for performance and long life. They are easy to erect and tune, and will last many years. No lossy traps are used in these internationally acclaimed antenna designs.

Butternut Verticals

BUT-HF2V	2-Band, 80/40M	**$299.95**
BUT-HF6V	6-Band, 80/40/30/20/15/10M	**$439.95**
BUT-HF9V	9-Band, 80/40/30/20/17/15/12/10/6M	**$499.95**
BUT-MPS	Mounting Post Sleeve for HF6V/HF9V	**$21.95**
BUT-GRK	Ground Radial Kit for HF2V/HF6V/HF9V	**$99.95**
BUT-TBR-160S	160 Meter Top Band Kit for HF2V/6V/9V	**$199.95**
BUT-CPK	Counterpoise Kit for HF6V/9V	**$199.95**
BUT-A-17-12	17/12 Meter Kit for HF6V, 277-10	**$69.95**
BUT-A-6	6 Meter Kit for HF6V, 277-12	**$22.95**

Butternut Yagis

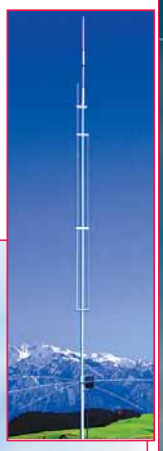
BUT-HF5B	5-Band Butterfly Beam, 20/17/15/12/10M	**$599.95**
BNR-3X10	Skyhawk Triband Beam, 20/15/10M	**$1,199.95**

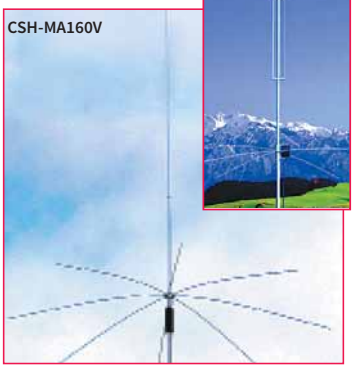

BUT-MPS

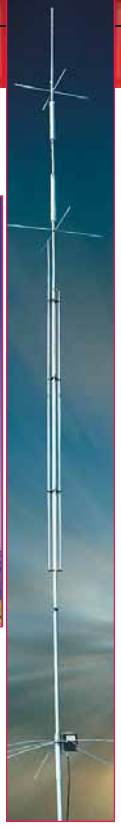
BUT-GRK

New!

Cushcraft
Amateur Radio Antennas


CSH-R6000


CSH-MA160V


CSH-R8

Vertical Antennas

CSH-MA160V 160 Meter 36' Vertical Antenna with Radial Kit

This antenna is a compact, efficient vertical designed for working top-band DX from an average-size house lot. A low launch angle and deep overhead null combine to pull in distant stations while rejecting local QRM.

CSH-MA160V 160M Vertical Antenna **$289.95**

CSH-R6000 20-6 Meter 6-Band, 19' Vertical Antenna

This is a 6 through 20 meter, no-ground radial antenna. No traps are used on 6, 10 and 15 meters for maximum efficiency and power handling.

CSH-R6000 6-Band Vertical Antenna **$429.95**

CSH-R8 40-6 Meter 8-Band, 28.5' Vertical Antenna

This multi-band design provides 8-band coverage encompassing the 6, 10, 12, 15, 17, 20, 30, and 40 meter bands. The antenna provides 360 degree (omni) coverage on the horizon and a low radiation angle in the vertical plane for a better DX.

CSH-R8 8-Band Vertical Antenna **$529.95**

CSH-R8GK 3-Point, Non-Conductive Guy System for R8 ..... **$55.95**

Rotatable Dipole Antennas

CSH-D3	20/15/10 Meter Triband	**$359.95**
CSH-D3W	30/17/12 Meter WARC	**$359.95**
CSH-D40	40 Meter	**$389.95**

Cushcraft Vertical Antennas

CSH-MA160V	160 Meter with Radial Kit, 36'	**$289.95**
CSH-MA8040V	80/40 Meter Dual-Band, 27'	**$309.95**
CSH-MA5VA	20-10 Meter 5-Band, 14.7'	**$289.95**
CSH-MA6VA	20-6 Meter 6-Band, 14.7'	**$329.95**
CSH-R6000	20-6 Meter 6-Band, 19'	**$429.95**
CSH-R8	40-6 Meter 8-Band, 28.5'	**$529.95**
CSH-R8GK	Guying Kit for R8 Antenna	**$55.95**
CSH-AR10	10 Meter Ringo, 3 dB, 17.6'	**$109.95**
CSH-AR6	6 Meter FM Ringo, 3 dB, 10'	**$99.95**
CSH-AR2	2 Meter FM Ringo, 3 dB, 3.9'	**$64.95**
CSH-ARX2	2 Meter Ringo Ranger, 5 dB, 9.3'	**$79.95**
CSH-ARX2B	2 Meter Ringo Ranger II, 7 dB, 14'	**$99.95**
CSH-ARX220B	220 MHz Ringo Ranger II, 7 dB, 9'	**$104.95**
CSH-AR270	2 Meter/440 MHz Ringo, 3/5.5 dB, 3.75'	**$119.95**
CSH-AR270B	2 Meter/440 MHz Ringo, 5.5/7.5 dB, 7.7'	**$179.95**
CSH-AR450	440 MHz FM Ringo, 3 dB, 1.4'	**$47.95**
CSH-ARX450B	440 MHz Ringo Ranger II, 7 dB, 5'	**$99.95**

hy-gain

Hy-Gain Super Penetrator 10/12 Meter Vertical Antenna

The legend from the 1970s is back! This fantastic, true full-size 5/8-wave vertical antenna from Hy-Gain is the only antenna of its type to survive the test of time.

With the steady increase in sunspot activity, 10 meters is back! This antenna will allow you to collect more 10-10 numbers, work more DX, and make ham radio more fun.

The SPT-500 is 22 feet, 9.5" tall and is specifically designed to accept AM/FM, SSB, CW, and digital signals with low loss. Handles 1,500 watts.

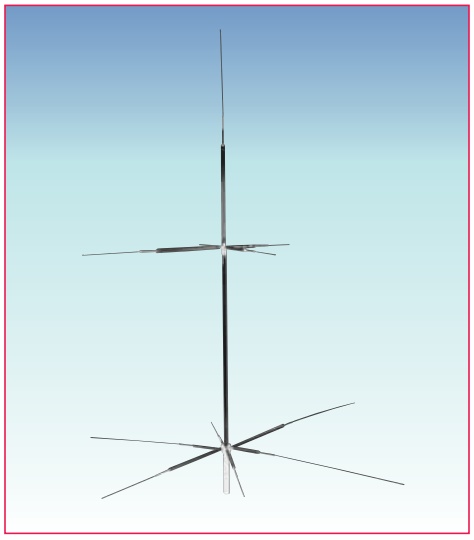
HGN-SPT-500 10/12M Vertical Antenna **$149.95**

HUSTLER

Hustler G-Series Vertical Antennas

Serious performance in easy-to-assemble packages. Hustler's G-Series Antennas offer the perfect union of price, coverage and performance. These durable antennas are made from high-quality materials, so they stand up to Mother Nature and give you years of reliable use.

HSR-G7-144	2M Base Vertical Antenna, 7 dBd Gain, 4 MHz Bandwidth, 15.33'	**$199.95**
HSR-G6-144B	2M Base Vertical Antenna, 6 dBd Gain, 6 MHz Bandwidth, 9.75'	**$139.95**
HSR-G3-144	2M Base Vertical Antenna, 3 dBd Gain, 4 MHz Bandwidth, 7.42'	**$69.95**
HSR-G7-220	1.25M Base Vertical Antenna, 7 dBd Gain, 5 MHz Bandwidth, 9.75'	**$174.95**
HSR-G6-440	70cm Base Vertical Antenna, 6 dBd Gain, 10 MHz Bandwidth, 7.25'	**$189.95**
HSR-G6-270R	2M/70cm Base Vertical Antenna, 6 dBd Gain, 4 MHz/10 MHz Bandwidth, 7.5'	**$199.95**



Maldol

HVU-8 Vertical Base Station Antenna

If you're short on space but still want an antenna with multi-band capabilities, Maldol gives you an excellent option. This vertical antenna is specifically designed for your space constraints; it works so well it can be used in a portable antenna application. The ground radials screw into rotatable collars that can be positioned in a variety of directions, for several mounting options. This 8 foot vertical antenna handles 200 watts, and allows you to operate on the 80, 60, 40, 10, 6 and 2 meter bands as well as 70cm.

MLD-HVU-8 Vertical Base Station Antenna **$339.95**

International Shipping is Quick and Easy! See Page 58 for Details

ACB-4 Phased Array Systems for 2- or 4-Element Vertical Arrays

COMTEK SYSTEMS uses state of the art design and technology to produce the most advanced antenna systems possible. These Phased Array Systems are affordable, simple to install, and easy to use. A phased array consists of two or more elements fed in a phase relationship and power ratio to obtain a directional pattern. COMTEK SYSTEMS' phased array switchboxes can be used with 2- or 4-element horizontal or vertical arrays to provide the greatest directivity.

We offer the ACB-4 for all amateur bands from 10 meters to 160 meters. The ACB-4 is band specific—you cannot use an 80 meter ACB-4 for any band other than 80 meters.

Power Supply/Switch Control

- 12 Vdc operation
- Custom USA-made switch permits 360° rotation in either direction with no stops
- Current limiting resistor protection for each LED
- Chassis and cover custom manufactured to COMTEK SYSTEMS specifications
- Lexan® label for recording favored directions
- Compact size: 2" H x 6.25" W x 5" D

90 Degree Hybrid-Relay Matrix

- 15 amp gold-plated contact relays with dust covers
- Belden PTFE silver stranded wire over 3M Fiberglass tape-wound toroids
- Sprague 5% balanced temperature, frequency, and voltage stable capacitors
- Laboratory analyzed for improved performance
- Double-sided printed circuit board
- 2 kW conservative rating for Amateur Radio Service
- Harris MOVs for lightning surge protection with Sprague RF bypass caps
- Brushed aluminum Z-chassis and cover with riveted seams
- Size: 4" H x 6" W x 8.5" D

COM-ACB-160-A	Hybrid Phased Array Four-Square System, 160M	**$422.95**
COM-ACB-80-A	Hybrid Phased Array Four-Square System, 80M	**$412.95**
COM-ACB-40-A	Hybrid Phased Array Four-Square System, 40M	**$402.95**
COM-ACB-30-A	Hybrid Phased Array Four-Square System, 30M	**$392.95**
COM-ACB-20-A	Hybrid Phased Array Four-Square System, 20M	**$392.95**
COM-ACB-15-A	Hybrid Phased Array Four-Square System, 15M	**$392.95**
COM-ACB-10-A	Hybrid Phased Array Four-Square System, 10M	**$392.95**

Stack 2 Systems

Designed for tri-band, log periodic or monoband Yagi antennas covering the 40 to 10 meter bands, the Stack 2 Yagi Switch Relay Unit lets you select from two antennas, either individually or simultaneously. This allows you to choose the best vertical radiation angle for the band conditions. It handles 3,000 watts and features reliable Potter and Brumfield relays.

The perfect compliment to your Stack 2 Yagi Switch Relay Unit, the Stack 2 Switch Control Console integrates seamlessly with both old and new COMTEK Stack 2 Systems. It runs on 12 Vdc at 1A and includes a power cable.

You can save money by purchasing both components together in a single system. The only other items you'll need to complete your installation are the three-conductor control cable and 2 equal lengths of 50 Ω coax cable.

COM-STACK-2	Stack 2 Yagi Switch Relay Unit	**$226.95**
COM-STK2A	Stack 2 Yagi Switch Control Console	**$125.95**
COM-STACK-2-A	Stack 2 Yagi Switch System with Console and Relay Unit	**$294.95**

Stack 3 Systems

Building upon the success of the Stack 2 System, COMTEK offers you even more selectivity, giving you a broader range of signal arrival and transmission angles. The Yagi Array Switch Relay Unit lets you choose from any single (or combination of) three Yagi Beam Antennas. You can also use it to match and switch a 3-monoband Yagi stacked array for any HF band, covering 40, 30, 20, 17, 15, 12 and 10 meters.

To operate the Stack 3 Yagi Array Switch, use a COMTEK Yagi Switch Control Console. This unit helps you select each antenna individually or in any combination of your other two antennas. Indicator lights are intuitive and the controls are user-friendly; the unit works on 110 Vac.

The Switch Unit and Control Console are also available together in an economical package. You just need to add your frequency-specific impedance-matching coax and control cable.

COM-STACK-3	Stack 3 Yagi Switch Relay Unit	**$299.95**
COM-STACK3-1	Stack 3 Yagi Switch Control Console	**$125.95**
COM-STACK-3-1	Stack 3 Yagi Switch System with Console and Relay Unit	**$399.95**

DX Engineering Transmit Four-Square Hybrid Controller— 4 Directions plus Omni

DX Engineering's TFS4 Series Four-Square Controllers combine a high level of engineering excellence with attention to operator convenience and ease of installation. The controllers are available for 160, 80/75, and 40 meters. They allow the operator to receive or transmit with 5.5 dB gain in any one of four directions with 20+ dB front-to-back ratio for interference reduction from unwanted directions. You can also switch to a single omni-directional pattern with the push of a button. This combination permits you to listen "all-around"—unhindered by pattern nulls—and then select the best direction for signal reception and noise rejection.

The TFS4 controllers are designed for use with a four monoband vertical antenna array spaced at the corners of a square that is 1/4-wavelength on a side. The vertical antennas must be ungrounded and resonant in the desired band, and should be directly base-fed by coaxial cable phasing lines from the centrally located controller. DX Engineering has vertical antennas that are well suited for this application. Above all, a properly designed and installed radial system is necessary for top antenna performance, whether using a single vertical or a full array.

DX Engineering strongly recommends our optional QWC Series 1/4-wavelength cables. They are constructed of the highest quality Belden 8213, an RG-11/U foam dielectric cable with a velocity factor of 84% (0.84). These cables are cut to a precise electrical length based on your choice of center operating frequency. They are terminated with hand-soldered Silver-PTFE PL-259 connectors and weather-sealed with shrink tubing. Finally, each cable is tested for high voltage breakdown for maximum reliability and power handling.

If you already have a Four-Square array with a hybrid controller (such as COMTEK SYSTEMS, etc.) and would like to upgrade to improved performance and the Omni feature, the DX Engineering TFS4 Series is a direct transplant. BCD logic switching allows the use of a four-wire control cable to perform the necessary switching functions when powered by the included DXE-CC-4SQR Control Console.

- Classic Hybrid Design—easy to install
- 5 kW CW Power Rating—high reliability
- Hot Switching Lock-Out—disables amplifier while switching
- Drop-In Replacement for COMTEK SYSTEMS—easy upgrade
- Proven DX Engineering RF Relays—high performance
- High-Impact Shielded Weatherproof Housing—unique protection

DXE-TFS4-160B-P	160 Meter Four-Square Controller with Control Console	**$609.00**
DXE-TFS4-80B-P	80 Meter Four-Square Controller with Control Console	**$599.00**
DXE-TFS4-40B-P	40 Meter Four-Square Controller with Control Console	**$589.00**

The Control Console is also available separately

DXE-CC-4SQR	Transmit Four-Square Control Console	**$199.95**

DX Engineering Customer Support personnel will be happy to help you select all the components necessary for a complete installation.

PVS-2 Two-Element Phased Vertical Systems

For those who do not have space for a Four-Square phased vertical array, COMTEK SYSTEMS offers the superior PVS-2 two-element phased vertical system. Quality components are used throughout, yet the system is very affordable.

- Three direction switching includes selectable end-fire and broadside directions
- Typical 18 dB front-to-back rejection and 3 dB gain
- Rated at 3 kW continuous Amateur Service duty
- <.05 dB insertion loss
- Includes MOVs for maximum ESD protection
- Amphenol silver tip SO-239s and Potter & Brumfield relays
- Includes a custom, in-house wound UNUN and a 90 degree toroid
- A 4-conductor control line is required

COM-PVS-160-A	Phased Vertical System, 160M, 2-Element, 12 Vdc	**$343.95**
COM-PVS-80-A	Phased Vertical System, 80M, 2-Element, 12 Vdc	**$343.95**
COM-PVS-40-A	Phased Vertical System, 40M, 2-Element, 12 Vdc	**$343.95**
COM-PVS-30-A	Phased Vertical System, 30M, 2-Element, 12 Vdc	**$343.95**
COM-PVS-20-A	Phased Vertical System, 20M, 2-Element, 12 Vdc	**$343.95**

Accessories

COM-P213-160-P	RG-213 Phasing Cable, 160M, Set of 2	**$189.95**
COM-P213-80-P	RG-213 Phasing Cable, 80M, Set of 2	**$119.95**
COM-P213-40-P	RG-213 Phasing Cable, 40M, Set of 2	**$89.95**
COM-P213-30-P	RG-213 Phasing Cable, 30M, Set of 2	**$81.95**
COM-P213-20-P	RG-213 Phasing Cable, 20M, Set of 2	**$75.95**
COM-CW4	4-Conductor Control Cable	per foot **$0.28**

Maximum Signal—Minimum Noise!

How often have you heard the old saying "If you can't hear 'em, you can't work 'em?" This is never more true than when you are in the pileup calling that rare contact that you need, wondering "Did he come back to me?"

DX Engineering provides all the tools you need to construct fabulous receiving antennas—the kind that let you work stations that others can't even hear! These W8JI-designed amplifiers and antenna controllers are known worldwide for their unequalled performance. Record-breaking DXpeditions—like VP6DX Ducie Island—know and use DX Engineering receiving equipment. Follow their lead and enjoy hearing those weak stations like you have never heard them before.

Single Direction Beverage Feed System

The DXE-BFS-1 is a single-wire Beverage Feed System. This W8JI design is immune to strong signal overload and core saturation common in multi-transmitter contesting environments, and is used by winning contest stations and low-band DXers. The unit uses an isolated-winding, matching transformer system to significantly increase the signal-to-noise ratio in Beverage and other high impedance antennas.

The DXE-BFS-1 works with antenna impedances from 400-500 Ω. Included with the DXE-BFS-1 is a 470 Ω, 2 watt non-inductive resistor that withstands nearby lightning strikes significantly better than hard-to-find carbon composition resistors.

Feedline impedance on the DXE-BFS-1 is designed for 75 Ω, although it will work with 50 Ω coax. The DXE-BFS-1 uses an industry standard CATV type F connector. DX Engineering sells quality 75 Ω coax and type F connectors for outdoor installations.

Benefits

- 100 kHz to 30 MHz operating range
- Spark gaps minimize damage from lightning
- Wing nut terminals eliminate soldering
- Metal housings used for superior shielding and improved life
- Flange-mount holes for easy mounting
- Ground isolated secondary essential for building beverage arrays

DXE-BFS-1 Beverage Feed System **$54.95**

DXE-ECM-R470-2 470 Ω, 2 Watt Resistor, Lightning Damage-Resistant, Pack of 10 ..... **$20.00**

DXE-TB-5P

Reversible Beverage System

The DXE-RBSA-1P allows two Beverage antennas receiving in opposing directions to share the same space. With the DXE-RBSA-1P, you can build a 2-wire reversible Beverage antenna system with superior signal-to-noise ratio, most useful at 40, 80 and 160M bands. The W8JI design consists of a Feedpoint System and Reflection Transformer. You can operate and even confirm the F/R ratio of this antenna at any time from the operating position.

This system is immune to strong signal overload and core saturation common in multi-transmitter contesting environments, and is used by winning contest stations and low-band DXers.

The DXE-RBSA-1P has two antenna ports. The standard configuration of the DXE-RBSA-1P has one port terminated (termination included) so both antennas share a common feedline. Applying 10 to 18 Vdc to the feedline switches between the antenna, and the direction of reception. For simultaneous reception from opposing directions, each of the two feedlines connect to a separate receiver.

While the DXE-RBSA-1P is optimized to use 450 Ω ladder line for the antenna element, the system will work with any 300-600 Ω 2-wire line. 450 Ω ladder line is available from DX Engineering, sold separately. DX Engineering also sells quality 75 Ω coax and Type F connectors for outdoor installations.

Benefits

- Broad operating range, 0.2 to 30 MHz
- Fully isolated grounds used to prevent common-mode noise and unwanted signals
- 75 Ω design enables the use of high quality, low cost cable
- Metal housings used for superior shielding and improved life

DXE-RBSA-1P Reversible Beverage Feed System **$209.95**

DXE-TB-5P Tilt Base **$19.95**

Splitter/Combiner

Use this to combine two receiving antennas to form an array or to split the signal from an antenna to feed two receivers. The DXE-RCS-2 also reduces problems and performance shortfalls caused by impedance errors in less-than-perfect antenna systems. This unit has a broad, 0.3 to 30 MHz range and features spark gaps to lessen damage from lightning strikes.

Combining

- Matches the entire antenna system to cable impedance
- Wide bandwidth
- Built-in isolation and balancing
- Very high isolation between ports 1 and 2

Splitting

- Typical signal level reduction just over 3 dB per port
- Provides equal power, voltage, and current to matched loads on ports 1 and 2
- The individual receiver will not seriously affect the signal level of the other

DXE-RSC-2 2-Port Splitter and Combiner **$54.95**

Receive Preamplifier

Optimized for a 0.3-35 MHz operating range, this unit uses a push-pull amplifier design to squash harmonic distortion. Robust components help it handle high signal levels and its dynamic range is better than most receivers. This preamp is well suited for indoor or outdoor use and can be powered via coax feed. When DC power is absent, a relay trips to automatically bypass the amplifier.

Specifications

- RCA type phono jack and type F connector
- Gain: 16 dB, 0.3-35 MHz (+1.5/-1.5 dB over this range)
- Output Third Order Intercept: 43 dBm
- Noise Figure: 3.5 dB
- One dB Compression: +26 dBm (~0.4 W output)
- 500 Hz BW IM3 Dynamic Range: 110 dB or greater
- Requires 10-18 Vdc at 140 mA max.

DXE-RPA-1 Receiver Preamplifier, 0.3-35 MHz **$123.95**

2-Port Receiving Antenna Switch

Select one of two output ports (generally connected to different receiving antennas) from one feedline using the DXE-RLS-2. Install the DXE-RLS-2 with two DXE-RBS-1P Reversible Beverage Antenna Systems and select four directions using a single main feedline. Install one or more DXE-RLS-2s to expand larger Beverage arrays and share the feedline back to the operating position.

Applying a nominal 12 Vac or DC control voltage through the feedline activates transfer to port 2. Use DX Engineering's DXE-FVC-1 Voltage Coupler to supply the control voltage through the feedline.

Benefits

- Metal housings used for superior shielding and improved life
- High-quality components
- Reliable CATV type F connectors standard
- Broad 0.3 to 30 MHz operating range with 75 Ω systems
- Jumper-selectable—control voltage pass-through to the selected port

DXE-RLS-2 Receiving Antenna Switch **$79.95**

Find More Brands, More Products and More Specs at DXEngineering.com

Orders by 10 pm ET Ship Same Day, See Page 58 for Details

RTR-1A Antenna Receive Interface

If you have a standard transceiver without a separate receive input port; but you want to enjoy the advantages of a separate receive antenna, DX Engineering has the perfect solution. Connect an external receive-only antenna to your transceiver with this interface, or add a TX/RX switch to your older gear, insert a receive preamplifier and add interfacing antennas to phasing or noise cancelling systems. The RTR-1A also provides failsafe protection to the unswitched receive antenna port on your expensive transceiver.

This Active Receive Interface handles 200 watts, supports full break-in CW and uses a patented* low-noise receive antenna limiter circuit. It is RoHS-compliant and well suited for use from 1.8 MHz to 30 MHz.

DX Engineering's Active Receive Interface is an invaluable accessory for your shack, allowing you to expand and improve your antenna connection systems. All the details on this innovative unit are at DXEngineering.com.

DXE-RTR-1A Receive Antenna Interface **$159.95**
***US Patent 8,175,546**

Receive Feedline Current Choke

The Receive Feedline Current Choke (RFCC) is the most effective solution to common-mode noise or unwanted signal ingress in receiving systems available. It provides thousands of ohms isolation between the input and output coaxial shield connections while passing desired signals, including DC or low frequency AC control signals. The RFCC has extremely high isolation impedance, which effectively blocks common-mode noise or unwanted signals, even in the presence of very poor grounding. The RFCC is effective from 300 kHz to 30 MHz. It comes with standard type F female connectors, although it can be used in any 50 to 75 Ω receiving system.

DXE-RFCC-1 Receive Feedline Current Choke, 50/75 Ω, 0.3-30 MHz **$69.95**

Feedpoint Voltage Coupler

- Inject control voltages onto feedline
- Injects +/- 12 Vdc or 12 Vac
- For use with DXE-RBS-1P Reversible Beverage System or Remote 2-Position Switch DXE-RLS-2
- AC supply included

DXE-FVC-1 Feedpoint Voltage Coupler **$89.95**

Time Variable Sequence Unit

Protect your active antennas, transmit/receive relays and other equipment with the DX Engineering Sequencer. You have full control of the timing between your rig and amplifier. This microprocessor-controlled device provides 0-30 milliseconds of delay in 2 millisecond steps to as many as five outputs tied to the key-in line. You can sequence the switching of critical devices such as the transmit/receive relay, amplifier, and exciter.

In addition, the DXE-TVSU-1A has an internal side tone generator for CW. You listen to what you are keying while it is being held in the bucket brigade delay for transmit after the programmed delay. The side tone is adjustable from 300 to 1000 Hz in 50 Hz steps.

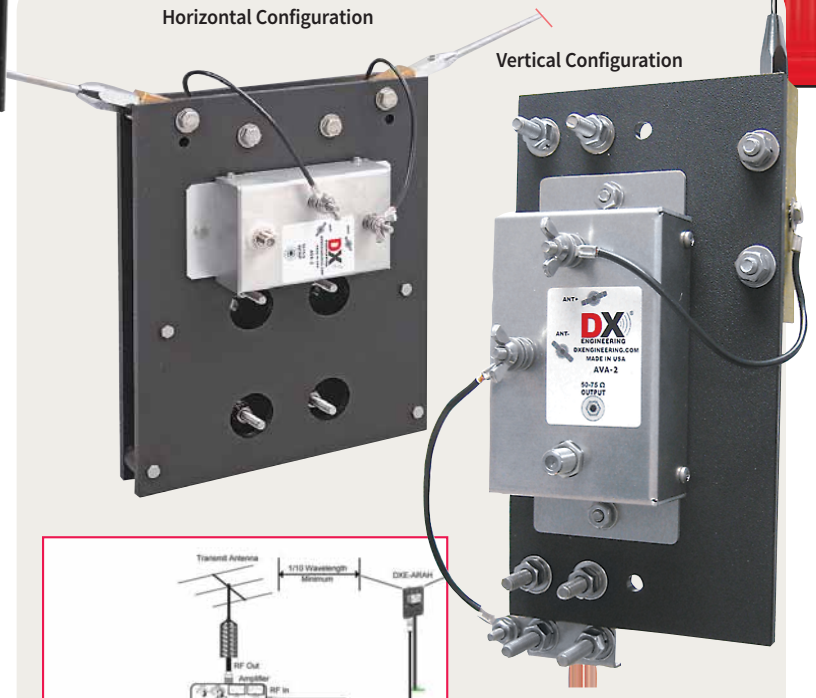
Benefits

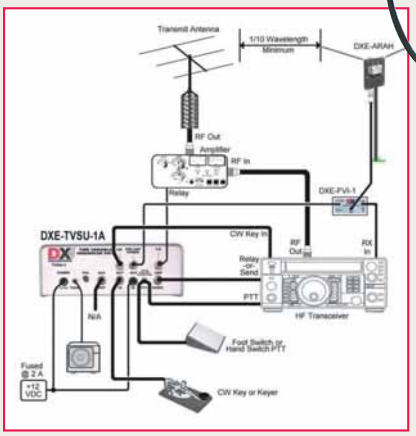
- Control timing on PTT turn-on, hang delay of PTT, hang delay of amplifier, hang delay of antenna relay, and turn-on delay of auxiliary output
- Dip switch settable delays of 0-30 milliseconds in 2 millisecond steps
- Side tone generator that follows input of keyer or hand key, not transmitter
- Side tone can be programmed for 300-1000 Hz in 50 Hz steps, adjustable volume
- Supports CW full break-in
- Allows use of our Active Receive Antennas in close proximity to transmit antennas

DXE-TVSU-1A Time Variable Sequence Unit **$199.95**

Horizontal Configuration

Vertical Configuration



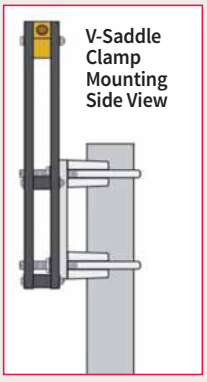


< ARAH system located between 1/10-wavelength and 1/2-wavelength from the transmitting antenna, connected to a transceiver with a receive input using the DXE-TVSU-1A Time Variable Sequencer Unit for proper switching.

Active Receive Antenna Systems

DX Engineering's Active Receive Antenna Systems offer excellent receiving performance using a 102" whip antenna. The unique design is vastly superior to traditional active antennas in both signal handling and feedline decoupling. You get significantly better weak signal reception.

Available in vertical or horizontal dipole configurations, the systems include a non-conductive mounting plate, clamps, active matching system, and the 102" stainless steel whip elements. The horizontal dipole element uses two 102" whips for an overall length of 210"; the vertical configuration uses a single whip. Whip antennas have excellent wind survival and are very inconspicuous.



When space is limited, use the DXE-ARAV3-1P or DXE-ARAH3-1P in conjunction with the DXE-TVSU-1 to provide for operation within 1/10-wavelength of a transmit antenna. The active antennas have relay protection to prevent overload of the transmit signal. The DXE-TVSU-1A sequencer controls switching times to ensure the receive system is protected before transmit power is applied. Use the DXE-ARAV3-4P, DXE-TVSU-1A and DXE-RFS-2 to provide four-square operation within 1/10-wavelength of a transmit antenna.

The vertical configuration can be used as a single element or in combination with DX Engineering's RFS-2 Receive Four-Square Antenna System to build a broadband directional array that can be switched in four directions to peak the signal or null out noise. Vertical configurations are for suburban or rural locations with low levels of ground wave propagated noise. The dipole configuration makes a very sensitive, horizontally polarized receiving antenna. Horizontal polarization can greatly reduce ground wave propagated noise in congested urban environments. Light weight and low wind resistance reduces support requirements. The output connector is a Type F, allowing use of readily available high performance CATV feedlines and connectors .

Features

- Sensitive—weak signal sensitivity rivaling full size antennas
- Wide bandwidth—100 kHz to 30 MHz
- Excellent strong signal handling—outstanding third order intercept of +30 dBm
- Reduced noise—quiet FET followers and high feedline shield isolation
- Easy mounting and installation—pre-drilled mounting plate and universal clamps

DXE-ARAH3-1P Active Receive Antenna, Horizontal Configuration with Relay **$349.95**

DXE-ARAV3-1P Active Receive Antenna, Vertical Configuration with Relay **$248.95**

International Shipping is Quick and Easy! See Page 58 for Details

DX Engineering Receive 8 Circle Packages

These packages are built around the DX Engineering Receive 8 Circle Array Controller and the EC-RCA8 Receive Eight Circle Control Console. They are designed to be used with eight identical, symmetrically-spaced vertical elements—active or passive—to provide switching for an eight-direction receiving antenna system. (Passive elements will generally provide you with a monoband receiving system).

The Receive 8 Circle system uses time-delay phasing (rather than conventional narrow-band, frequency dependent phasing) to provide eight 45 degree-spaced directional patterns. The time-delay phasing is directivity-optimized to produce wider and deeper rear nulls and a narrower main lobe. The result is greatly reduced noise and undesirable signals for a superior front-to-rear ratio (F/R). Better control of phase and currents provides a cleaner pattern than found on vertical antenna transmit arrays.

The system also offers greater reliability in receiving applications. The RC8 controller uses sealed relays—sized for receiving applications—with oxidation-resistant silver contacts. Most transmitting four-square switches use large open-frame relays with exposed brass contacts, which can lead to contamination, oxidation, and poor conductivity.

The DXE-RCA8B-SYS-2P Controller and Switch Package includes:

- DXE-RC8B-1 Receive 8 Circle Array Controller
- DXE-EC-RCA8 Receive 8 Circle BCD Control Console
- DXE-SSVC-2P Stainless Steel V-Clamp for mounting the RC8B to a 1-2" O.D. post

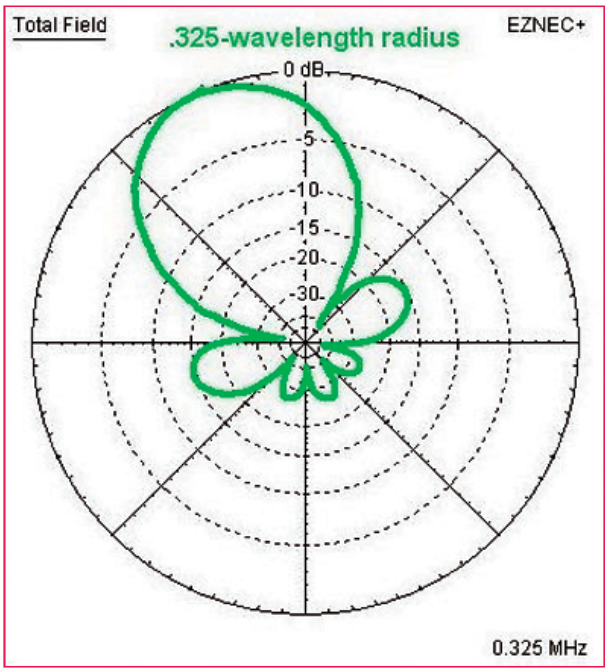
The DXE-RCA8B-SYS-3P Electronics Package
Includes everything from DXE-RCA8-SYS-2P, plus:

- Eight DXE-AVA2 Active Voltage Amplifiers with internal disconnect relays
- DXE-RPA-1 Receiver Preamplifier, 0.3-35 MHz
- Custom-made delay line—75 Ω F6 flooded coaxial cable with Snap-N-Seal® connectors installed

The DXE-RCA8B-SYS-4P Complete Electronics Package
Includes everything from DXE-RCA8-SYS-2P, plus:

- DXE-ARAV3-8P Active Receive Antenna Array Package (see below)
- Two DXE-F6-1000 F6 flooded coax cable, 75 Ω (1,000' each)
- DXE-CPT-659 Coax Cable Prep Tool
- DXE-SNS-CT1 Snap-N-Seal® crimp tool for 75 Ω coax
- DXE-SNS6-25 Snap-N-Seal® connectors for F6 coax, 25 pieces

DXE-RCA8B-SYS-2P Receive 8 Circle Controller and Switch Package **$498.95**
DXE-RCA8B-SYS-3P Receive 8 Circle Electronics Package..... **$1,497.95**
DXE-RCA8B-SYS-4P Receive 8 Circle Complete System Package..... **$2,575.00**



DXE-RFS-SYS-4P
Complete Package

Receive Four-Square System

- W8JI design
- Excellent directivity in a small space for better signal-to-noise ratio
- Switchable in four 90 degree spaced directions
- Reduced susceptibility to high angle signals compared to EWE, Flag, Pennant, or K9AY arrays
- Operates from 100 kHz to 30 MHz
- Each complete system package includes four active vertical antennas, RFS-2 switch, CC-8A controller, 1,000 feet of F6 flooded cable, connectors and tools
- TVSU-1 Time Variable Sequencer Unit included to protect active antennas installed as close as 1/10-wavelength from transmitting antenna

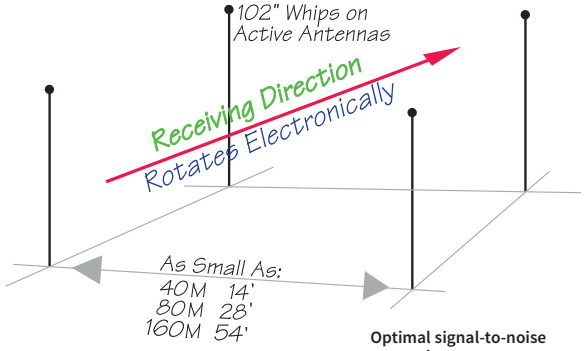
DXE-RFS-SYS-4P Receive Four-Square System Package **$1,650.00**
DXE-RFS-SYS-2P Four-Square Controller and Switch Package..... **$343.95**
DXE-RFS-SYS-3P Four-Square 160/80/40M Electronics Package **$799.00**
DXE-EC-4 Four-Square Controller, 4-Position BCD Output..... **$89.95**
DXE-TVSU-1A Time Variable Sequencer Unit **$199.95**
System components also available individually.

Complete Electronically Steered Receiving System

- More than 5 S-units of front-to-back on optimized systems
- Works best on 160M, 80M and 40M
- Like having a rotatable Beverage antenna
- Fits in YOUR yard!
- Easily installed—no radials required

Want to know what people are saying aboout this system?
Visit: www.eham.net/reviews/detail/5336

Four-Square Receiving System



Optimal signal-to-noise ratio occurs at 1/4-wavelength side length

DXE-ARAV3-8P Active Receive Antenna Array Package

The DX Engineering Active Receive Antenna Array Package contains eight DXE-ARAV3-1P Active Receive Antennas. They offer excellent receiving performance from 100 kHz to 30 MHz while using only 102" whips as the vertical elements. This results in significantly better weak signal reception due to lower spurious signal interference and reduced noise. The package also includes mounting blocks, wiring, and mounting clamps.

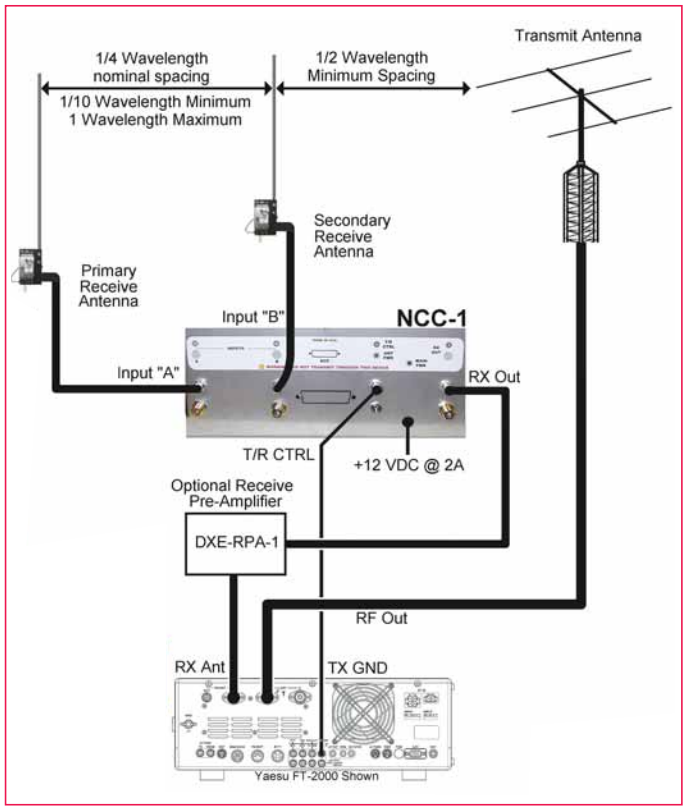
DXE-ARAV3-8P Active Receive Antenna Array Package..... **$1,991.60**

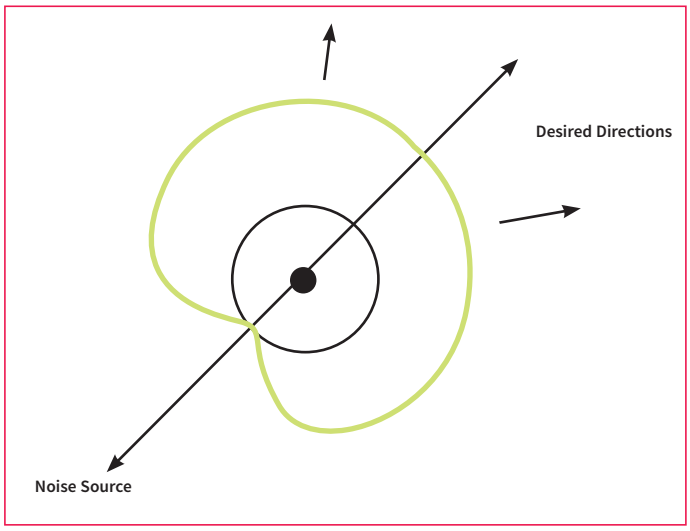
Typical Installation for DX Engineering NCC-1

This diagram shows the DX Engineering NCC-1 in a station with a single transceiver that has a separate receive antenna port. The two active receive antennas are shown deployed in the recommended position. The DX Engineering RPA-1 Preamplifier is normally not needed as most of today's transceivers have built-in preamps to compensate for overall lower signal levels obtained from small receive-only antennas. **What is most important is the NCC-1's ability to improve the overall signal-to-noise ratio and null out interference from other directions.**

The diagram shows the transceiver keying line set up to allow the NCC-1 to shut off the power to the DXE Active Receive Antennas, which have an internal relay which grounds the antenna for protection from TX RF.

The DX Engineering NCC-1 can be used with many receiving antenna combinations including Single and Reversible Beverages, Receive Four-Square Arrays, K9AY Loops, and more. It will increase the directivity of any properly spaced combination of two similar antennas as long as the signal levels are within the range of the balancing controls.



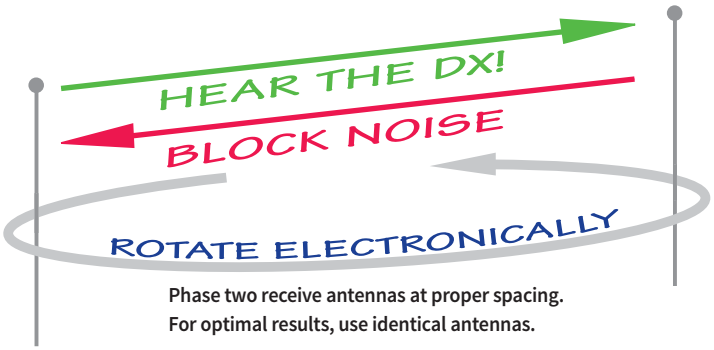


Receive Antenna Variable Phasing Controller & Noise Canceller

Allows control of signal level and phasing of two receive antennas—see specifications below. It is available separately for those who want to design their own variable receive antenna system.

DXE-NCC-1 Receive Antenna Variable Phasing Controller **$599.95**

See NCC-1 specifications below.



Phase two receive antennas at proper spacing.
For optimal results, use identical antennas.

Electronically Rotatable Receive Antenna System

Phased receive-only antenna systems are used to create a directional pattern which can peak desired signals and remove interfering signals. Variable phase nulling allows an operator to improve reception by electronically reducing a stronger interfering signal arriving from a different direction. It also can dramatically reduce noise.

This system includes two Active Receiving Vertical Antennas and the DXE-NCC-1 Receive Antenna Variable Phasing Unit. It combines the two verticals to produce a steerable directional array.

The system improves your reception of weak DX by:

- Combining two omni-directional antennas to produce an adjustable directional pattern
- Reducing overload from a strong signal in a different direction
- Reducing interference from distant signals or noise in a different direction
- Nulling directional strong signals to hear weak stations on the same frequency

Features

- Vertical antenna elements only 102" long
- Ideal for Amateur Radio or Shortwave listening
- Antenna elements are grounded when power is turned off
- Use with DXE-TVSU-1A sequencer for best protection before transmitting

NCC-1 Phasing Unit Specifications

- Usable Frequency Range: 300 kHz to 30 MHz
- Optimum Performance Range: 500 kHz to 15 MHz
- Third Order Output Intercept: +32 dBm each input, +38 dBm both inputs combined
- Gain Flatness: +/- 1 dB over complete phase rotation
- Gain: Adjustable from 0 dB to -40 dB
- Available Phase Rotation: >360 degrees between 500 kHz and 15 MHz
- Power: NCC-1 +13 Vdc nominal @ 1A minimum (2A recommended)
- Antenna Port Power: 10-30 Vdc @ 300 mA maximum, TX muting available

DXE-AAPS3-1P Active Antenna Phasing System..... **$1,099.95**

MFJ

Noise Cancelling Signal Enhancers

Made to combat strong sources of RFI, either from other stations or unusual noise, these enhancers help boost the signals you want while attenuating the signals you don't. More powerful than a basic noise blanker, the enhancers can negate or cancel all types of noise and interference. They both cover 1.8 to 30 MHz with 290 degrees of phasing; the deluxe version adds an attachable indoor whip. For all the details, visit DXEngineering.com.

MFJ-1025 Noise Cancelling Signal Enhancer **$169.95**
MFJ-1026 Deluxe Noise Cancelling Signal Enhancer..... **$189.95**

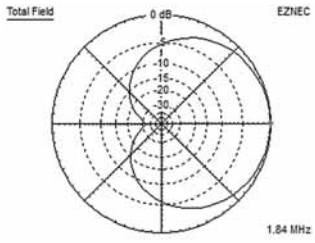
DX Engineering is Now Your Exclusive Hi-Z Dealer

DX Engineering is happy to bring you quality HF Directive Receiving Arrays from Hi-Z Antennas. For over five years, Hi-Z Antennas has been engineering and perfecting antenna designs with one goal in mind: creating superior products. Now, through an exclusive partnership, you get high-quality Hi-Z Antennas with the customer service you expect from DX Engineering. For all of Hi-Z's products, visit DXEngineering.com.

New!

Certain Hi-Z system products are being manufactured and sold as permitted under the terms of a certain License Agreement among PDS Electronics, Inc. dba DX Engineering, as the Licensor, and Hi-Z Antennas and Lee Strahan, as the Licensees.

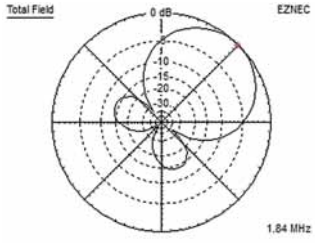
3-Element 4-Direction Systems



This receiving antenna system's L configuration makes it perfect for small lots. It uses three shortened elements that still provide 4-direction switching. A typical 50 foot layout of 20 foot tall elements and Hi-Z amplifiers can provide 30 dB of front to back ratio on 160 meters. This system is well suited for the 160, 80 and 40 meter bands, yet can still receive below the broadcast band to 30 MHz. It requires 13.8 Vdc via a 4-conductor cable: 13.8V, GND, CTRL1 and CTRL2.

HIZ-2-3 3-Element 4-Direction System **$439.00**

3-Element Triangular Array Systems



These 3-element receive phased vertical arrays offer excellent performance with a small footprint. Their scalable design means you get six switchable directions and you can configure for best RDF or F/B Ratio. Since there's no sequencing, the systems thrive in high-RF fields—ideal for those running QRO nearby. (These are also great contesting setups.)

These systems operate on the 160, 80 and 40 meter bands but can be used from below the broadcast band to over 30MHz. A typical 50 foot triangular layout of 20 foot tall elements and Hi-Z amplifiers can provide 30 dB of front to back ratio on 160 meters. They use 13.8 Vdc and a 6-conductor control cable.

HIZ-3-LV2-40 3-Element, 6-Direction System, 40' Spacing **$705.00**

HIZ-3-LV2-50 3-Element, 6-Direction System, 50' Spacing **$705.00**

4-Element Array Systems

This new and unique circuit configuration uses Tri-Phase combining for extra accurate phasing and amplitude stability. This improves performance while also minimizing these systems' footprints. You configure them for optimal RFD and F/B ratio and select from four possible receive directions. Their unique design makes them great options for high-RF areas.

The systems cover 160, 80 and 40 meters, from below the broadcast band to over 30 MHz. A typical 80 foot square layout of 20 foot tall elements and Hi-Z amplifiers can provide 30 dB of front to back ratio on 160 meters.

They take 13.8 Vdc via 4-conductor cable, and you can easily upgrade to the Hi-Z 4-8 Pro.

HIZ-4-LV2-60 4-Element, 4-Direction System, 60' Spacing **$809.00**

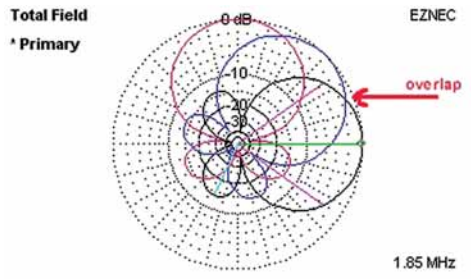
HIZ-4-LV2-80 4-Element, 4-Direction System, 80' Spacing **$809.00**

8-Element Array Systems

These ultra high-performance monoband arrays feature excellent performance in a small space. All the elements are active in a circle, to provide stellar receive capabilities in eight directions. The F/B Ratio of the Hi-Z 8-element array outperforms long Beverage and various loop antennas. The Hi-Z 8A has a preamp external (post) phase controller, making any necessary filter insertion easy. The systems use 13.8 Vdc and a 7-conductor control cable.

HIZ-8A-LV2-80-1 8-Element, 8-Direction System, 80M, 100' Spacing **$1,488.00**

HIZ-8A-LV2-160-2 8-Element, 8-Direction System, 160M, 200' Spacing **$1,488.00**



4-8PRO 8-Element Tri-Band Array System

Using a new and unique circuit configuration, these antennas are essentially two interleaved Hi-Z 4S systems. They feature Tri-Phase combining to give you super-accurate phasing and amplitude stability, as well as the least attenuation at all eight overlap points.

A typical 113 foot diameter layout of 20-24 foot tall elements and Hi-Z amplifiers can provide 30 dB of front to back ratio with 8 directions. These systems perform well in high-RF fields. They cover 160, 80 and 40 meters, and are powered by 13.8 Vdc through a 5-conductor control cable.

HIZ-4-8P-LV2-85 8-Element 8 Direction System, 85' spacing..... **$1,303.00**

HIZ-4-8P-LV2-113 8-Element 8 Direction System, 113' spacing..... **$1,303.00**

Vertical Antennas

The perfect addition to your Hi-Z system, these aluminum telescopic vertical antennas are easy to build and install. Each antenna collapses to just six feet tall and is made to withstand the elements. They include an earth mount, jumper wires for amplifier hookup, and a weather resistant cover for your amplifier.

HIZ-AL18 17.5' Vertical Antenna..... **$131.00**

HIZ-AL24 23.25' Vertical Antenna..... **$137.00**

Antenna Amplifier PLUS-6

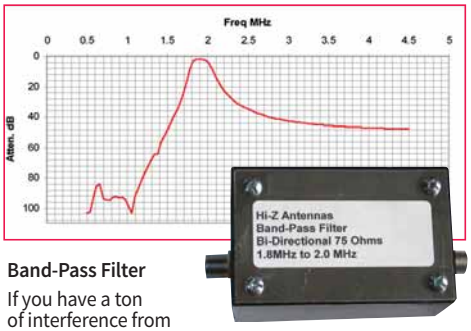
This weatherproof and ruggedized amplifier is the same unit found in Hi-Z's receiving arrays and can be used on non-resonant high impedance vertical elements. It has built-in common-mode isolation and provides 75 Ω matched output impedance. This is the increased gain model, offering Plus-6 0 dB with a 75 Ω output impedance. The amplifier requires 13.8 Vdc.

HIZ-PLUS6-AMP High Impedance Amplifier **$104.00**

75 Ω Inline Preamplifier

This 75 Ω cable amplifier provides a precision termination point for typical antenna array controllers/ combiners. You'll find this same preamp on Hi-Z's 160 and 80 meter receiving antennas. It is connects to the output of an array controller and provides 15 dB of voltage amplification. External connection requires +13.8 Vdc at .04 amps.

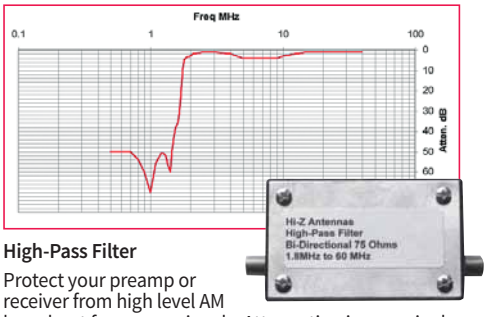
HIZ-PRE-AMP Inline 75 Ω Preamplifier **$80.00**



Band-Pass Filter

If you have a ton of interference from nearby high-power AM broadcast stations, here's your answer. This 75 Ω band pass filter gives you 35 dB of attenuation at 1600 KHz and much more at lower frequencies with an insertion loss of about 2 dB in the pass band. The band-pass 3 dB corners are at 1.8 MHZ and 2.0 MHz.

HIZ-BPF Band-Pass Filter, 1.8 to 2.0 MHz **$48.00**



High-Pass Filter

Protect your preamp or receiver from high level AM broadcast frequency signals. Attenuation is a nominal 30 dB at 1630 KHz and much more at lower frequencies. Insertion loss is an average 2 dB in the pass band. The lower frequency corner is –3 dB at 1.8 MHz.

HIZ-HPF High-Pass Filter, 1.8 to 60 MHz **$48.00**

S-9 Signal Source

Troubleshoot and verify that your complex multiple-element receiving arrays are working correctly. This self-contained oscillator connects directly to 50 or 75 Ω coax or antenna systems. It is useful for measuring controller output to verify all array elements are working. This unit requires a 9V battery, and there's an LED indicator that ensures there's enough battery life to take accurate measurements.

HIZ-SIGNALSOURCE RF Signal Source **$65.00**

Vertical Feedline Current Choke

When quarter-wave antennas are constructed over a good radial system, they have a feedpoint impedance of about 36 Ω and currents are equal between the vertical section and the radial system. If the radial system is less than ideal—due to short radials, too-few radials or poor soil conductivity—the antenna system will try to use the feedline shield as part of the radial system. This leads to a loss in the efficiency and a higher take-off angle. Often the current introduced on the shield of the feedline causes RFI at the operator position.

Placing a vertical feedline current choke (VFCC) at the base of the quarter-wave antenna forces the currents to equalize between the vertical section and the radial system, even if the radial system is less than ideal. The balanced terminals of the VFCC should be connected directly to the base of the antenna and radial plate with appropriate lengths of low-inductance tinned copper braid.

The DX Engineering VFCC is supplied with an insulated mounting shelf to isolate the feedline shield from ground. Purchase the optional V-Saddle Clamp for mounting the VFCC to pipe up to 2 inches O.D.

- Equalizes vertical and ground currents
- Improves signal efficiency
- Lowers radiation angle

DXE-VFCC-H05-A	Vertical Feedline Current Choke Kit, 2/5 kW, HF	**$134.95**
DXE-VFCC-H10-A	Vertical Feedline Current Choke Kit, 5/10 kW, HF	**$189.95**
DXE-SSVC-2P	V-Saddle Clamp, for 1" to 2" O.D. Pipe	**$11.95**

LDG-RBA-4-1

LDG-RBA-1-1

LDG-ALK-2

RBA Series Baluns

LDG Electronics designed these baluns to let you easily connect ladder line and long wire antennas to LDG's automatic antenna tuners. For more versatility, these baluns can operate without an LDG tuner and may be used with any of your long random or ladder line antenna projects.

LDG-RBA-4-1	4:1 Voltage Balun	**$27.95**
LDG-RBA-1-1	1:1 Current Balun	**$28.95**

Accessories

LDG-ALK-2	Audio/Linear/Key 2-Port Switch	**$49.95**

Visit DXEngineering.com to learn more about LDG baluns and accessories!

RU Series 4:1 UNUN

New!

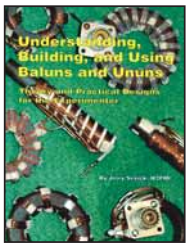
If you're using 50 Ω coax to feed your 43 foot vertical antenna, then this UNUN is essential to create a perfect match. Rated at 200 watts, it will easily tame your resonant verticals and will come in handy whenever you need a 4:1 match for an antenna project.

LDG-RU-4-1	RU-4:1 UNUN	**$27.95**

CQ Magazine Publications

W2FMI Understanding Baluns and Ununs

W2FMI Jerry Sevick's compilation of balun performance and design criteria. It offers clear explanations to prompt further discussion of theory and applications.



CQM-SEVICKBALUNS	W2FMI Understanding Baluns and Ununs	**$19.95**

Palstar

B4KC Current Baluns

Palstar B4KC Current Baluns are available in both 1:1 and 4:1 ratios. They're intended for indoor use on Lo-Z antenna applications for center-fed wire antennas with open wire and twin lead transmission lines. B4KC Baluns feature steatite insulators and a large 3.25" ferrite core with Teflon® 12-gauge wire. Rated up to 4,000 watts, these are useful additions to your antenna.

PAS-B4KC-4-1	4:1 Current Balun	**$89.95**
PAS-B4KC-1-1	1:1 Current Balun	**$89.95**

hy-gain

Broadband Ferrite Balun

This balun matches your 50 Ω direct coax-fed, hairpin/beta matched or trap tri-band Yagi antenna. It can couple into any 50 Ω balanced system, like dipoles, multiband doublets and beam antennas. The BN-86 Balun handles 800 watts SSB and 1,500 watts CW, while covering the 80 to 10 meter bands. Using stainless steel hardware, this sturdy boom-mounted balun will give you years of reliable service.

HGN-BN-86	Broadband Ferrite Balun	**$79.95**

hy-gain

BN-4000B Broadband Beam Current Balun

This 1:1 balun provides the proper current path between unbalanced coax and your balanced antenna feedpoint. It's compatible with 50 Ω direct coax-fed, hairpin/beta matched and trap tri-band Yagi antennas. Using ferrite beads over a short length of coax, the BN-4000B effectively chokes the flow of RF on the outside of your coax shield. You can use this balun from 160 meters all the way to 6 meters. It handles 2,000 watts of continuous duty.

HGN-BN-4000B	Broadband Beam Current Balun	**$109.95**

Permatex® Neutral Cure RTV Sealant

Have you ever sealed a piece of electronic gear with ordinary RTV sealant, only to open it later to find that the component had become corroded? It wasn't moisture that caused the corrosion—it was the RTV. Ordinary RTV gives off acetic acid when it cures (that's the vinegar smell); it's the acid that causes the corrosion. DX Engineering has located a Neutral Cure RTV that is non-corrosive and safe for sealing baluns and other electronic gear that will be out in the weather. Applies just like "normal" RTV, dries in one hour and cures in 24 hours at 70 degrees F.

UMI-82180	Permatex Neutral Cure RTV, 3.35 oz. Tube, Black	**$5.99**

Hazardous, limited to domestic UPS Ground shipping only.

50 and 75 Ω Choke Baluns

Choke baluns ensure that RF does not flow on the outside shield of feedlines, phasing lines, etc. COMTEK SYSTEMS' baluns feature 100 Amidon beads on a length of RG-400 PTFE double-shielded silver coax terminated with Silver PTFE PL-259 UHF connectors. Assembled baluns are covered with 3M heat shrink tubing. RF bead kits are available if you wish to assemble your own chokes.

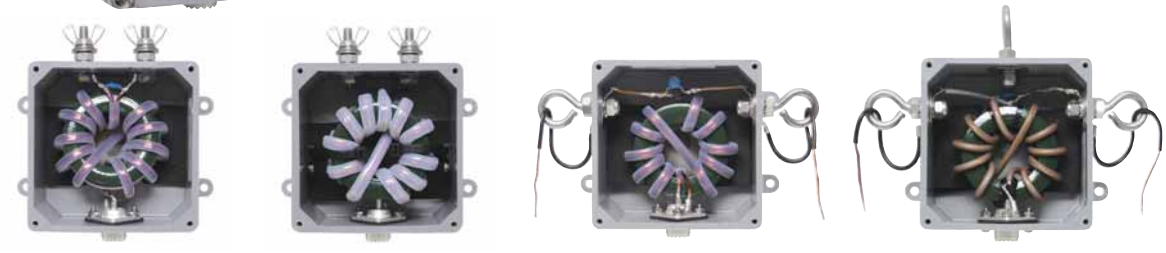
COM-CFC-50	50 Ω Balun, Assembled	**$93.95**
COM-CFC-50K	50 Ω Balun, Kit	**$69.95**
COM-CFC-75	75 Ω Balun, Assembled	**$94.95**
COM-RFB-160	RF Choke Bead Kit, 160M	**$89.95**
COM-RFB-80	RF Choke Bead Kit, 80M	**$84.95**
COM-RFB-40	RF Choke Bead Kit, 30 and 40M	**$67.95**
COM-RFB-20	RF Choke Bead Kit, 10, 15 and 20M	**$38.95**

COMTEK SYSTEMS

Accessories

DXE-RADP-3	Stainless Steel Radial Plate with 20 Bolt Sets	**$54.50**
DXE-SSVC-2P	V-Saddle Clamp, Fits 1" to 2" Tube	**$11.95**

Jerry Sevick W2FMI-inspired COMTEK Baluns



COMTEK SYSTEMS

COMTEK Baluns

COMTEK Baluns were inspired by the writings of Jerry Sevick W2FMI, published in his book *Understanding, Building and Using Baluns and Ununs.* COMTEK baluns are value-engineered to provide maximum performance at minimum cost while providing a superb, efficient match between unbalanced coax and balanced antennas.

- Design inspired by Jerry Sevick W2FMI with modern improvements from DX Engineering's in-depth balun R&D
- Unique high voltage compensating capacitors for unequalled SWR bandwidth
- Outstanding ferrite mix coated toroid core with special design to accommodate close coupling without excessive stress
- Exceptionally high and consistent common-mode impedance across the specified band width provides isolation where it is needed most
- Special wire size selection and Teflon®-insulated wire sleeves provide exact impedance matching and superb insulation, unlike common Thermaleze® wire
- Typical insertion loss is less than 0.2 dB
- Power handling from 3 kW continuous to 7 kW intermittent, depending on model May be used to 54 MHz with reduced ratings
- Gasketed SO-239 connectors are silver plated with Teflon® insulation.
- All hardware is Stainless Steel. Studs are 1/4"-20
- COMTEK Baluns are sealed in a weatherproof 4" x 4" x 2" NEMA box which makes an excellent outdoor enclosure

1:1 Dual Wire/Single Core

COM-BAL-11130E 3 kW, 1.8 to 54 MHz, Side Eyebolts..... **$56.95**
COM-BAL-11130ET 3 kW, 1.8 to 54 MHz, Side/Top Eyebolts..... **$56.95**
COM-BAL-11130S 3 kW, 1.8 to 54 MHz, Side Studs..... **$56.95**
COM-BAL-11130T 3 kW, 1.8 to 54 MHz, Top Studs..... **$56.95**

1:1 Coax/Single Core

COM-BAL-11150E 5 kW, 1.8 to 54 MHz, Side Eyebolts..... **$61.95**
COM-BAL-11150ET 5 kW, 1.8 to 54 MHz, Side/Top Eyebolts..... **$61.95**
COM-BAL-11150S 5 kW, 1.8 to 54 MHz, Side Studs..... **$61.95**
COM-BAL-11150T 5 kW, 1.8 to 54 MHz, Top Studs..... **$61.95**

1:1 Dual Wire/Dual Core

COM-BAL-11140T 5 kW, 1.8 to 54 MHz, Top Studs..... **$78.95**
COM-BAL-11140S 5 kW, 1.8 to 54 MHz, Side Studs..... **$78.95**

1:1 Coax/Dual Core

COM-BAL-11150DS 5 kW, 1.8 to 54 MHz, Side Studs..... **$78.95**
COM-BAL-11150DT 5 kW, 1.8 to 54 MHz, Top Studs..... **$78.95**

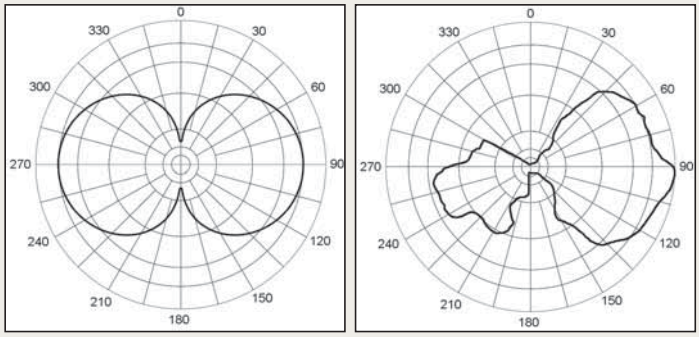
4:1 Dual Wire/Single Core

COM-BAL-41130E 3 kW, 1.8 to 54 MHz, Side Eyebolts..... **$66.95**
COM-BAL-41130ET 3 kW, 1.8 to 54 MHz, Side/Top Eyebolts..... **$66.95**
COM-BAL-41130T 3 kW, 1.8 to 54 MHz, Top Studs..... **$66.95**
COM-BAL-41130S 3 kW, 1.8 to 54 MHz, Side Studs..... **$66.95**

4:1 Dual Wire/Dual Core

COM-BAL-41150T 5 kW, 1.8 to 54 MHz, Top Studs..... **$93.95**
COM-BAL-41150S 5 kW, 1.8 to 54 MHz, Side Studs..... **$93.95**
COM-BAL-41150E 5 kW, 1.8 to 54 MHz, Side Eyebolts..... **$93.95**

Contact DX Engineering Customer Support to discuss your application or for recommendations.



Balanced Current **With No Balun**

W2FMI Series Baluns

When properly connected to balanced antenna loads like symmetrical dipoles, unbalanced coaxial feedlines must have exactly equal and opposite currents on the shield and center conductors. COMTEK baluns are value-engineered to provide maximum performance at minimum cost while providing a superb, efficient match between unbalanced coax and balanced antennas.

Balanced current distribution along the halves of the antenna assures correct pattern shape and antenna efficiency. Current baluns add common-mode isolation between the antenna and coaxial feedline.

The expected figure-8 dipole azimuth pattern cannot be achieved unless RF current is flowing equally on both halves of the dipole. The COMTEK current baluns force equal current to flow and prevent high values of common-mode feedline current. This eliminates pattern distortion, unpredictable performance, RFI, and noise pickup from nearby sources like TV sets and computers.

Baluns come in ratios for effective SWR matching between the 50 Ω coaxial transmission line and the antenna feedpoint based on the feedpoint impedance. COMTEK baluns have been designed to provide the lowest possible SWR match across the specified frequency range.

Current baluns isolate or add impedance to unwanted common-mode current paths, reducing or controlling common-mode current. Current baluns are the best choice in almost all situations because they work better in most real-world systems by isolating the input and output connections.

Contrary to some published information, a high common-mode impedance across a wide frequency range is absurd, if not unachievable. The highest impedance values are most useful at lower frequencies, while lesser impedance values are more than adequate at the high end of the HF range. In most cases, baluns are installed as close as possible to a balanced-to-unbalanced transition point.

4:1 High Power UNUN for Non-Resonant Vertical Antennas

Using non-resonant multi-band antennas? This UNUN helps your antenna system operate at maximum efficiency by minimizing transmission line losses caused by SWR. You can add this UNUN to any 43 foot antenna system; it covers 1.8-30 MHz and can handle 2 kW CW/5 kW SSB.

Mounting and feedpoint connection kits are available separately; or you can purchase everything together for a complete installation package.

DXE-UN-43	High Power 4:1 UNUN	**$104.95**
DXE-UN-BRKT	UNUN Mounting Kit	**$22.95**
DXE-TCB-UNFK	UNUN to Vertical Feedpoint Connection Kit	**$9.50**
DXE-UN-43-R	Complete Package with UNUN, Mounting and Feedpoint Kits	**$129.95**

Balun Mounting and Installation Solutions

Mounting your balun correctly is critical to maintaining its reliability. Here are several options to ensure your balun is ready to face Mother Nature.

Balun or Choke Mounting Kit

The DXE-VFCC-BRKT is the same bracket kit supplied with our Vertical Feedline Current Chokes. It also works well with several other models. The kit includes the stainless steel bracket and insulated shelf. You can mount it to a standard 4x4 or 6x6 wooden post with basic wood screws. If you're using this kit to mount your balun to 1 to 2 inch O.D. pipe, you'll want to use a durable clamp; we recommend our V-Saddle Clamp.

DXE-VFCC-BRKT	Balun or Choke Mounting Kit	**$19.95**
DXE-SSVC-2P	V-Saddle Clamp	**$11.95**

Balun Dipole Adaptor Bracket

If you're mounting your balun or feedline choke to a wire dipole antenna, the Balun Dipole Adapter Kit is the ideal solution. It suspends your balun with the antenna and includes all necessary mounting hardware. Be sure to use durable rope that can support the added weight; check out the Double-Braided Polyester Rope from Synthetic Textile Industries, found on page 76.

DXE-BDAB-1P	Balun Dipole Adapter Kit	**$24.95**

Balun Mounting Bracket Kits

DXE-BMB-4P

DXE-BMB-1P

Select from several mounting options that match your Yagi boom, tower leg or mast's diameter. Each kit contains the appropriate stainless steel clamps and hardware, plus the aluminum bar mounting bracket. They're the perfect mounting method for any DX Engineering balun in a formed aluminum enclosure.

DXE-BMB-1P	Mounting Kit, with .75" to 1.5" Clamps	**$24.95**
DXE-BMB-2P	Mounting Kit, with 1.56" to 2.25" Clamps	**$24.95**
DXE-BMB-3P	Mounting Kit, with 2.31" to 3" Clamps	**$24.95**
DXE-BMB-4P	Mounting Kit, Made for COMTEK Baluns	**$17.95**

Cable Strain Relief Brackets

Mounting your balun or choke is only part of the equation—you still need to make sure your coaxial cables are secure and free from the stress of gravity. Our Cable Strain Relief Brackets will help prevent the cable from pulling from your PL-259 connector.

DXE-CSR8X-1	Cable Strain Relief Assembly, for RG-8X Cable	**$15.50**
DXE-CSR213-1	Cable Strain Relief Assembly, for RG-213/U Cable	**$15.50**

Find the Full Specs on Every DX Engineering Balun at DXEngineering.com, or Call Us and We'll Find the Perfect Match for Your Application!

Maxi-Core® High Power Transmission Line Transformers and Baluns

Ensure that your antenna system is operating optimally. These units have perfected the unbalanced-to-balanced transition, giving you the strongest signal your antenna is capable of producing in both transmit and receive situations. In addition to increased performance and coverage, these baluns reduce the electrical stress on your expensive equipment.

They cover the 1.8 to 30 MHz frequency range and with increased operating bandwidth compared to other baluns. Depending on the application, the baluns use ceramic insulators, stainless steel hardware and PTFE/silver SO-239 connectors.

Each balun is housed in either a lightweight, formed aluminum enclosure for basic outdoor use or in a cast aluminum gasketed enclosure suitable for extreme environments.

Part Number	Application	Ratio	Power (CW/SSB)	Enclosure	Price
DXE-BAL050-H05-A	Dipole, Yagi	1:1	2/5 kW	Formed Aluminum	**$99.95**
DXE-BAL050-H10-A	Dipole, Yagi	1:1	5/10 kW	Formed Aluminum	**$109.95**
DXE-BAL050-H11-C	Dipole, Yagi	1:1	10/10+ kW	Cast Aluminum	**$139.95**
DXE-BAL100-H11-C	Vertical Loop	2:1	10/10+ kW	Cast Aluminum	**$149.95**
DXE-BAL200-H10-A	Yagi, LPDA, Horizontal Loop	4:1	5/10 kW	Formed Aluminum	**$119.95**
DXE-BAL200-H11-C	Yagi, LPDA, Horizontal Loop	4:1	10/10+ kW	Cast Aluminum	**$144.95**
DXE-BAL300-H10-A	Folded Dipole	6:1	5/10 kW	Formed Aluminum	**$139.95**
DXE-BAL450-H10-A	450 Ω Antenna	9:1	5/10 kW	Formed Aluminum	**$139.95**
DXE-BAL600-H10-A	Terminated Loop	12:1	5/10 kW	Formed Aluminum	**$139.95**
Special Balun Applications for Use with an Antenna Tuner					
DXE-BAL050H10AT	Multi-Band Dipole	1:1	5/10 kW	Formed Aluminum	**$119.95**
DXE-BAL050H11CT	Multi-Band Dipole	1:1	10/10+ kW	Cast Aluminum	**$144.95**
DXE-BAL200H10AT	Multi-Band Vertical, Off Center-Fed Dipole	4:1	5/10 kW	Formed Aluminum	**$129.95**
DXE-BAL200H11CT	Multi-Band Vertical, Off Center-Fed Dipole	4:1	10/10+ kW	Cast Aluminum	**$149.95**

Maxi-Core® Special Line Transformers

If you need a long low loss feedline for your HF antennas, this pair of transformers may be able to save you some money. Instead of running a length of expensive coax, these transformers let you use 450 Ω ladder line as an affordable alternative. Simply run your ladder line and connect a transformer to each end, then connect your 50 Ω coax to each transformer, linking your antenna to your transceiver.

More details on this cost-effective solution can be found at DXEngineering.com.

DXE-BAL450H10-BP	Special Line Transformers, Pair	**$299.95**

Maxi-Core® Feedline Current Choke

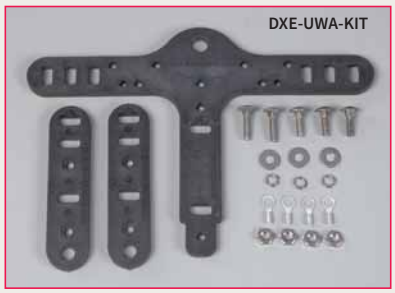
Fend off RF Interference and reduce the noise level in your 50 Ω coaxially-fed antenna system. It improves your transceiver's efficiency by maximizing the transmit power going to your antenna. In addition to eliminating RFI, this current choke can also overcome a less-than-optimal ground system.

The DXE-FCC0050-H05-A handles 2 kW and is compatible with vertical, Yagi and log periodic antennas. It offers higher common-mode impedance, higher power handling, and lower loss than other chokes. The Maxi-Core® Feedline Current Choke covers 160 to 6 meters and is an excellent way to combat poor feedline isolation.

DXE-FCC050-H05-A	Feedline Current Choke	**$87.95**

International Shipping is Quick and Easy! See Page 58 for Details

Rugged Construction—Maximum Reliability!



DX ENGINEERING

Universal Wire Antenna Kits

DX Engineering's three Universal Wire Antenna (UWA) Kits offer the right combination of parts and hardware to create a wide variety of antenna designs. You can create any type of wire antenna, including single band, multi-band, multi-frequency and folded dipole, doublet and inverted-vee, off-center fed, Windom, Zepp, long wires, rhombic, vee beam, and loop antennas.

The kits feature the new EZ-BUILD™ Center-T insulator and end insulators. The insulators have a unique patented design that features a serpentine wire grip for insulated DX Engineering Antenna Wire and DX Engineering's high strength, high power 300 Ω ladder line. The serpentine wire connection grip is strong enough to support the antenna wires without looping or wrapping the wire ends. This allows fast and easy field adjustments of antenna length without soldering!

The insulators are made of a lightweight, high strength, UV-protected material. The center-T insulator is designed to serve as a feedpoint and strain relief for antennas made with either wire or ladder line, which may be fed with either ladder line or coaxial cable. The center-T insulator can be the main support point for the antenna feedpoint by using the top center hole to attach a support rope. It also serves as the mounting and support point for any DX Engineering Balun.

The DXE-UWA8X-KIT and DXE-UWA213-KIT kits include a new strain relief bracket and P-clamps with neoprene cushions that grip the coaxial cable without deforming it, taking the weight of the hanging cable off of the connector. Each kit also includes crimp-on ring terminals for ladder line and antenna wire, and connection hardware.

DXE-UWA-KIT	Universal Wire Antenna Kit	$19.95
DXE-UWA8X-KIT	Universal Wire Antenna Kit for RG-8X	$39.95
DXE-UWA213-KIT	Universal Wire Antenna Kit for RG-213	$39.95
DXE-UWA-END-KIT	End Insulators, Package of 8	$12.00

STI

Antenna Support Rope

Synthetic Textile Industries' double-braided Dacron/Polyester ropes are not weakened by decay or mildew and provide excellent resistance to abrasion. The color-sealed, black polyester yarn used in the braided jacket also protects the cord from damage due to ultra-violet light. It is available in a variety of diameters and lengths.

SYN-DBR-94-100	3/32" Diameter Rope, 100' Roll	$8.95
SYN-DBR-94-1000	3/32" Diameter Rope, 1,000' Roll	$51.95
SYN-DBR-125-100	1/8" Diameter Rope, 100' Roll	$11.95
SYN-DBR-125-1000	1/8" Diameter Rope, 1,000' Roll	$76.95
SYN-DBR-187-100	3/16" Diameter Rope, 100' Roll	$16.95
SYN-DBR-187-350	3/16" Diameter Rope, 350' Roll	$44.95
SYN-DBR-187-500	3/16" Diameter Rope, 500' Roll	$63.95
SYN-DBR-312-100	5/16" Diameter Rope, 100' Roll	$18.95
SYN-DBR-312-500	5/16" Diameter Rope, 500' Roll	$91.95
SYN-DBR-437-500	7/16" Diameter Rope, 500' Roll	$189.95

Ladder-Line Fed Dipole Antennas

The DX Engineering multi-band dipoles are rugged yet lightweight. Each model resonates at the low end of the band specified. They are usable to 30 MHz with a wide range tuner and come complete with the wire elements, ladder feedline, center-T support and end insulators.

- Elements: 14 AWG copper, PVC jacket for flexibility and strength
- Feedline: 100 feet, 18 AWG, 300 Ω ladder line, UV-resistant, 0.88 VF
- Hardware: stainless steel
- Center-T support and end insulators: High impact, UV-resistant material, black
- Power Rating: 1,500 W

DXE-WA-260	Antenna, 260' Long for 160M and Up	$59.95
DXE-WA-135	Antenna, 135' Long for 80M and Up	$49.95
DXE-WA-070	Antenna, 70' Long for 40M and Up	$49.95

DIAMOND ANTENNA

New!

Wire Dipole Antennas

Complete kits that get you on the HF bands quickly. They include an SO-239 connector for easy hookup, a center insulator, and all necessary wire/cable. You don't need a tuner with these antennas, though some trimming may be required to get an improved SWR. They handle 1,200 watts.

The W735 Wire Dipole Antenna provides 80 and 40 meter coverage with an 85 foot cable. The W8010 gives you the 80, 40, 20, 15, and 10 meter bands with a 63 foot cable.

DMN-W735	Dual-Band Wire Dipole Antenna	$119.95
DMN-W8010	Five-Band Wire Dipole Antenna	$144.95

MFJ

Zepp Wire Antennas

MFJ's Zepp Wire Antennas are easy to hang up so you get on the air quickly. They feature custom fiberglass SO-239 mounts, 7-strand/14-gauge copper wire and glazed ceramic insulators. There's no need for soldering or cutting, and these super-durable antennas give you excellent performance on several popular bands.

MFJ-6115	15M End-Fed Zepp Wire Antenna	$32.95
MFJ-6117	17M End-Fed Zepp Wire Antenna	$34.95
MFJ-6120	20M End-Fed Zepp Wire Antenna	$35.95
MFJ-6130	30M End-Fed Zepp Wire Antenna	$39.95
MFJ-6140	40M End-Fed Zepp Wire Antenna	$44.95
MFJ-1748	80M End-Fed Zepp Wire Antenna	$69.95
MFJ-1742	20M Double-Zepp Extended Wire Antenna	$79.95

hy-gain

Center Insulator for Multi-Band Doublets with SO-239

This weatherproof, lightweight, high strength center insulator is used for connecting coaxial feedline to a doublet-type antenna. The insulator can be hung from a supporting mast. It has an SO-239 connector to attach to coaxial cable with a matching PL-259 connector.

HGN-C-1C	Center Insulator for Multi-Band Doublets	$29.95

Alpha Delta Wire Antennas

ALPHA DELTA COMMUNICATIONS, INC.

Multi-Band Dipole Wire Antennas

These complete resonant antennas include DELTA-C center insulator and end insulators, ISO-RES coils, and separate wires for different bands. All wires are attached to the center insulator. An ARC-PLUG™ static electricity protector is built in. Stainless steel hardware and 12-gauge solid copper wire ensure long life. Antennas are shipped fully assembled. No antenna tuners are necessary, except for 15 meter band with DX-CC.

ALF-DX-CC	80-10 Meter Parallel Dipole	**$159.95**
ALF-DX-DD	80-40 Meter Single Dipole	**$129.95**
ALF-DX-EE	40-10 Meter Parallel Dipole	**$139.95**
ALF-DX-LB	160-80-40 Meter Single Wire Dipole	**$159.95**
ALF-DX-LBPLUS	160-10 Meter Parallel Dipole	**$189.95**
ALF-SEP	Replacement ARC-PLUG protector	**$15.95**

Multi-Band Sloper Wire Antennas

These antennas provide good DX performance for limited space installations by combining the DX firepower of a quarter-wave sloper with the wide bandwidth of a half-wave dipole antenna. A built-in ARC-PLUG™ static electricity protector is included. Because the installation of sloper antennas depends on your available mounting circumstances, the use of a wide range antenna tuner is recommended for best performance.

ALF-DX-A	Twin Sloper, 160/80/40 Meter	**$99.00**
ALF-DX-B	Sloper, 160/80/40/30 Meter	**$109.95**
ALF-SEP	Replacement ARC-PLUG Protector	**$15.95**

SWL Antennas

Fully assembled for fast, easy installation, these antennas are optimized to provide best broadband receiving performance from the AM broadcast band through 30 MHz. The antennas include ISO-RES inductors, solid copper wire elements and the exclusive DELTA-C center insulator with a built-in ARC-PLUG™ static electricity protector. Stainless steel hardware and 12-gauge solid copper wire ensure long life.

ALF-DX-SWL	SWL Sloper Antenna, 60'	**$119.95**
ALF-DX-ULTRA	SWL Parallel Dipole, 80'	**$159.95**
ALF-SEP	Replacement ARC-PLUG Protector	**$15.95**

MFJ Wire Antennas

MFJ

G5RV All-Band HF Antenna

The world-famous G5RV antenna is a multi-band center-fed dipole with a 1,500 watt capacity. Designed as a 3/2-wavelength antenna for 14 MHz, it provides reasonable performance on many other bands. The antenna covers all bands from 160 to 10 meters when used with an antenna tuner. At 102 feet long, the G5RV is shorter than an 80 meter dipole. At 52 feet long, the MFJ-1778M Junior G5RV Antenna is half the size of the MFJ-1778 yet still covers 40 through 10 meters with tuner. It also handles 1,500 watts.

MFJ-1778	G5RV All-Band HF Antenna	**$44.95**
MFJ-1778M	G5RV Junior Antenna	**$39.95**

OCFD 40/20/10/6 Meter Dipoles

These antennas are CAD designed and engineered for low SWR, high efficiency, wide bandwidth, and frequency agility on all four of amateur radio's most interesting DX bands. The antennas are cut to length and preassembled—just connect your feedline. They're lightweight and easy to install.

MFJ-2010	OCFD UltraLite Dipole, 300 Watts	**$59.95**
MFJ-2012	OCFD PowerLite Dipole, 1.5 kW	**$79.95**

Collinear Array Wire Antennas

Classic antennas updated for the 21st century. If you can find two nearby trees, you can have a booming signal on many popular bands. These super-durable antennas give you almost 2 dB of gain for worldwide coverage. They are bi-directional, extremely quiet and can handle a whopping 1,500 watts. Just hang these wire antennas anywhere from 1/4- to 3/4-wavelengths above ground and start DXing the world.

MFJ-6215	15M Collinear Array Wire Antenna	**$39.95**
MFJ-6217	17M Collinear Array Wire Antenna	**$43.95**
MFJ-6220	20M Collinear Array Wire Antenna	**$44.95**
MFJ-6230	30M Collinear Array Wire Antenna	**$48.95**
MFJ-6240	40M Collinear Array Wire Antenna	**$56.95**
MFJ-6415	15M Collinear Array Wire Antenna, 4-Element	**$89.95**
MFJ-6417	17M Collinear Array Wire Antenna, 4-Element	**$91.95**
MFJ-6420	20M Collinear Array Wire Antenna, 4-Element	**$99.95**

Dipole Antennas

Choose a Dipole Antenna from MFJ, and get effective yet reliable coverage in an antenna that's easy to use. Check out MFJ's lineup and select the dipole antenna that best suits your needs, and you can always visit DXEngineering.com for more specs.

MFJ-1776B	6M Folded Dipole Antenna	**$34.95**
MFJ-1770B	10M Folded Dipole Antenna	**$34.95**
MFJ-1770C	15M Dipole Antenna	**$34.95**
MFJ-1771B	17M Dipole Antenna	**$34.95**
MFJ-1772B	20M Dipole Antenna	**$34.95**
MFJ-1773B	30M Dipole Antenna	**$34.95**
MFJ-1774B	40M Dipole Antenna	**$34.95**
MFJ-1779A	160M Dipole Antenna, 26 5' Wire	**$69.95**
MFJ-1779C	20-6M Dipole Antenna, 35' Wire	**$29.95**
MFJ-17754	40-20M Dipole Antenna, 42' Wire	**$59.95**
MFJ-17758	80-40M Dipole Antenna, 85' Wire	**$89.95**
MFJ-1779B	80-40M Dipole Antenna, 135' Wire	**$43.95**
MFJ-2010	40/20/10/6M Ultra-Lite Off-Center Fed Dipole Antenna, 66' Wire	**$59.95**
MFJ-2012	40/20/10/6M Power-Lite Off-Center Fed Dipole Antenna, 66' Wire	**$79.95**
MFJ-2014	75/40M Power-Lite Off-Center Fed Dipole Antenna, 122' Wire	**$89.95**
MFJ-2299	20M-FM Broadcast Adjustable Multi-Band Telescopic Dipole Antenna	**$119.95**

MFJ Desktop/Remote 4-Position Antenna Transceiver Switch

A switch that you operate on your desk or from across the hall. It handles 1,500 watts, covers 1 to 60 MHz (lowest SWR from 1 to 30 MHz), and is made for 50 Ω antenna systems. All unused ports are grounded automatically and the switch features an ultra-fast gas tube lightning surge protector to protect your radio. **This switch is remotely operated through an RJ-45 cable by the MFJ-4724RC remote (sold separately).**

New!

MFJ-4724 Desktop/Remote 4-Position Antenna/Transceiver Switch **$139.95**

6-Port Antenna Switches

New!

MFJ-1700C

These switches are designed for 1.8 to 30 MHz. They handle 2,000 watts and antenna loads from 50 to 75 Ω. The unused terminals are grounded automatically, allowing for static discharge and lightning/RF protection.

The deluxe switch uses two ceramic rotary switches; one lets you select your antenna, the other your radio. That means you can use the switches independently with their two common ports. The deluxe version is perfect for inputting your antenna tuner, wattmeter or other linear device.

MFJ-1701 6-Port Antenna Switch **$69.95**

MFJ-1700C Deluxe 6-Port Antenna Switch..... **$99.95**

Manual Antenna Switches

MFJ antenna switches have precision-machined, low loss components for reliable service. Mount one of these antenna switches and you will have more than the convenience of instantly selecting any of four antennas or center ground positions. They come complete with replaceable lightning surge protection that helps to protect against distant lightning-induced surges and static. When these antenna switches are in the center position, all connectors are disconnected and grounded. If the switch is turned to an active connector, the other connectors are automatically grounded. The active connector is automatically protected with the replaceable lightning/surge protector. MFJ antenna switches utilize heavy cast metal construction and a ball bearing drive for smooth switching.

Additional features include:

- Handles 2.5 kW PEP
- Extremely low SWR
- Isolation: greater than 60 dB at 30 MHz, greater than 50 dB at 500 MHz
- Negligible insertion loss
- 50 Ω Impedance

MFJ-1702 2-Position Antenna Switch..... **$19.95**

MFJ-1702C 2-Position Antenna Switch with Grounding..... **$39.95**

MFJ-1704 4-Position Antenna Switch with Grounding..... **$79.95**

MFJ-2702 1 GHz/2 kW 2-Position Antenna Switch, SO-239 Connector; **$32.95**

MFJ-2702N 3 GHz/2 kW 2-Position Antenna Switch, N-Connector **$40.95**

RigExpert®

Professional Quality Antenna Analyzers

New!

DX Engineering carries powerful antenna analyzers from RigExpert. RigExpert makes exceptional measuring and test equipment for both communications professionals and Amateur Radio enthusiasts. They're designed for testing, checking, tuning, or repairing antennas and antenna feedlines.

These analyzers are packed with features; so if you want to learn more and see detailed specs, please visit DXEngineering.com. Whether you're building, experimenting or repairing your gear, count on an antenna analyzer from RigExpert to give you precise, accurate and reliable data.

Manual Antenna Switches

DAIWA

Perfect for switching one radio between two antennas (or two radios between one antenna), these rugged switches offer excellent isolation and auto-grounding of the unused terminal for extra protection.

Daiwa's CS-2011GII has a frequency range up to 2 GHz, 50 dB of isolation at 1 GHz and an insertion loss below 1.2 dB at 1.2 GHz. Gold plated Type N connectors make for easy installation.

The CS-201A has a frequency range up to 600 MHz, 60 dB of isolation at 600 MHz and an insertion loss under .2 dB. This switch features SO-239 connectors.

DWA-CS-201GII Manual Coax Switch, 2 GHz **$48.95**

DWA-CS-201A Manual Coax Switch, 600 MHz..... **$32.95**

DIAMOND ANTENNA

Wideband Coax Switches

Maximum Performance without Compromise!

Diamond Antennas offers an extensive line of station accessories: duplexers/triplexers, switches, dummy loads, and lightning protection. Maximize your installation; Diamond Antennas has the gear to help you do it.

Part Number	Description	Price
DMN-CX210A	Wideband Coax Switch, 1,500 W Max. DC-1000 MHz, SO-239	**$49.95**
DMN-CX210N	Wideband Coax Switch, 1,500 W Max. DC-1000 MHz, Type N Connector	**$79.95**
DMN-CX310A	Wideband Coax Switch, 3-Position. DC-800 MHz, SO-239	**$89.95**

AMERITRON®

RCS-4 Remote Antenna Switch

The Ameritron RCS-4 is a Four-Position Remote Antenna Switch which is powered through the coax cable. The relay switch box may be tower, mast or wall mounted—the control console is located at your operating position. It features bright LED indicators, a steel enclosure, 50 ms switching time, and SO-239 connectors. It uses three heavy-duty 10 ampere contact relays on a rugged G-10 fiberglass circuit board. The RCS-4 operates from 120 Vac power source, and covers 1.8 to through 30 MHz at 1,500 watts.

AME-RCS-4 1.5 kW Four Position RF Switch **$149.95**

ALPHA DELTA COMMUNICATIONS, INC.

ALF-D4

Manual Antenna Switches

Alpha Delta antenna switches have precision-machined, low loss components for reliable service. Grounded unselected antenna ports and ARC-PLUG™ lightning surge protectors provide the final line of protection.

ALF-DELTA-2B 2-Position Coax Switch, SO-239 Connector **$59.95**

ALF-DELTA-2B-N 2-Position Coax Switch, N-Connector **$75.95**

ALF-DELTA-4B 4-Position Coax Switch, SO-239 Connector **$89.95**

ALF-DELTA-4B-N 4-Position Coax Switch, N-Connector **$99.95**

ALF-ASC-4B 4-Position Desk Console Switch, SO-239 Connector..... **$149.95**

ALF-ASC-4B-N 4-Position Desk Console Switch, N-Connector..... **$159.95**

ALF-D4 Replacement ARC-PLUG **$9.95**

LIMITED TIME OFFER:

Orders Over $99 Ship Free

See page 58 for details.

DXE-RR2X8B SO2R RF Antenna Switch

The RR2X8 is a dual-input, 8-port coaxial line switch for use in low- to medium-power RF antenna systems, like those typically used in a single-operator/two-radio (SO2R) environment. It has the same high port-to-port isolation and reliability as DX Engineering's famous RR8-series single-input, 8-port remote antenna switches.

- Dual-input, 8-port, 4 kW key-down
- Excellent port-to-port isolation—greater than 70 dB at 30 MHz worst case
- High RF-tolerant UHF connectors
- Enclosed 16 ampere RF relays
- Safe 12-volt relay operation
- 16 MOVs for surge protection on control lines
- 16 RF bypass capacitors
- High-impact, RF-shielded cover
- Includes one DXE-SSVC-2P Stainless Steel V-Clamp for mounting

The DXE-RR2X8B is designed to interface with a customer-supplied logical switching unit, which should provide protection against hot switching and prevent the master or slave from attempting to select the same output port at the same time.

Manual operation is possible with two separate 1-of-8, control consoles such as the DX Engineering CC-8A or EC-8. In this case, care must be exercised as the master transceiver takes precedence over the slave when attempting to use the same antenna port.

DXE-RR2X8B SO2R RF Antenna Switch **$595.00**

CC-8A Deluxe Control Console

The CC-8A is a flexible 8-position controller for DX Engineering RR8 Series Antenna Switches or any product that uses a 12/24 Vdc, 1-of-8 or BCD control format. The powdercoated metal housing features an on/off switch, ergonomic selector knob, and eight front-panel LEDs (with adjustable brightness) to indicate switch position. Stainless steel base plate. Operates from 12 Vdc or 24 Vdc source.

DXE-CC-8A Deluxe Control Console **$169.95**

EC-8 Control Console

The EC-8 is a versatile 8-position controller for DX Engineering RR8A Series Antenna Switches, or any other product that uses a 12/24 Vdc, 1-of-8 control format. The powdercoated metal housing features an on/off switch with green power LED and an ergonomic selector knob with scratchpad areas to mark the switch position function. Stainless steel base plate. Operates from a 12 Vdc source.

DXE-EC-8 8-Position Control Console **$89.95**

EC-4 Control Console

The DXE-EC-4 is a flexible, four-position controller used to control the DX Engineering Receive Four-Square series or any other product using a four-position (three wire plus ground) BCD control format. It features a powdercoated housing with an ON/OFF switch and green LEDs with scratchpad areas to mark the switch position function. It requires 12 Vdc for operation.

Additional Features:

- Stainless steel housing
- Non-skid feet
- Four green position-indicating LEDs
- An internal automatic resettable fuse
- Includes a 2.1mm power plug for +12 Vdc power connection

DXE-EC-4 4-Position Control Console **$89.95**

COM-CW3

DXE-CW8-HD

Multi-Conductor Control Wire

DXE-CW9	Shielded Control Wire, 9-Conductor	per foot **$0.32**
DXE-CW9-1K	Shielded Control Wire, 9-Conductor, 1,000 Foot Spool	**$229.00**
DXE-CW9S	Shielded Control Wire, 9-Conductor Stranded	per foot **$0.36**
DXE-CW8	Control Wire, 8-Conductor	per foot **$0.48**
DXE-CW8-HD	Control Wire, 8-Conductor, Heavy-Duty	per foot **$0.89**
DXE-CW8-HD-1000	Control Cable, 8-Conductor, Heavy-Duty, 1,000 Foot Spool	**$835.75**
COM-CW3	Cable, 3-Conductor	per foot **$0.25**
COM-CW4	Cable, 4-Conductor	per foot **$0.28**

DX Engineering's Symmetrical Design—Highest Reliability and Performance!

DXE-RR8B-HP-P

Remote Antenna Switches

Installation of these remote antenna switches is hassle-free. There's no need to remove the cover to install the control cable—it plugs in with an external connector. You can use inexpensive CAT-5 cable to connect between the relay switch and the controller at the operator position.

The DX Engineering RF Switch also provides great SWR and superior port-to-port isolation.

DX Engineering RF Switches have a port-to-port isolation of greater than 60 db for ALL ports, not just the best port. This is the finest port isolation of all the coax switches we have tested—and we have tested ALL of the major brands. In fact, one particular major manufacturer's switches tested as low as 30 dB. None of the tested switches have a port-to-port isolation as high as DX Engineering's switches.

This is one component in your station that should be the very best!

Features

- Fully RF-shielded with UV-resistant high-impact cover
- Can select individual or multiple ports for stacking cover, stainless steel mounting bracket and hardware and phased array applications
- Lightning protection standard
- Safe 12-volt relay operation
- Solderless, removeable plug for easy installation of control wire
- Unused antenna ports can be jumpered for open control line with no disassembly or shorted to ground
- Can be wired without disassembly

The DXE-RR8B-HP uses 16 relays (2 per port) in a star arrangement to provide greater than 70 dB of port-to-port isolation. It is designed to switch coaxial lines in RF systems operating up to 5 kW continuous duty. The DXE-RR8B-SD is the largest switch in the RR8B series, designed to switch coaxial lines in high power RF systems up to 10 kW continuous duty.

Specifications

- Port Isolation (Worst Case): 70 dB (RR8B-HP), 60 dB (RR8B-SD)
- Sealed RF Relays: 20 amps (HP), 25 amps (SD)
- Power Rating (<2:1 SWR at 30 MHz): 7 kW ICAS/5 kW CCS (HP), 10 kW ICAS/CCS (SD)
- Control Voltage: 10-14 Vdc/100 mA (HP), 10-14 Vdc/160 mA (SD)
- Loss (HP): <0.03 dB below 60 MHz, <0.25 dB below 150 MHz
- Loss (SD): <0.03 dB below 30 MHz, <0.16 dB below 60 MHz
- Impedance: 50 Ω
- Control Line: 8-wire plus ground, #24 up to 1,000' (DXE-CW9S)

DXE-RR8B-HP
5 kW Key-Down RF Switch

- Highest isolation
- 5 kW rating
- Usable to 150 MHz

DXE-RR8B-SD
10 kW Key-Down RF Switch

- 10 kW rating
- Usable to 60 MHz
- Excellent isolation

DXE-RR8B-SD

Single-Input 8-Port RF Switches and Console Combos

DXE-RR8B-HP	5 kW Key-Down Switch	**$349.00**
DXE-RR8B-HP-P1	5 kW Key-Down Switch with CC-8A Console	**$505.00**
DXE-RR8B-HP-P2	5 kW Key-Down Switch with EC-8 Console	**$415.00**
DXE-RR8B-SD	10 kW Key-Down Switch	**$435.00**
DXE-RR8B-SD-P1	10 kW Key-Down Switch with CC-8A Console	**$595.00**
DXE-RR8B-SD-P2	10 kW Key-Down Switch with EC-8 Console	**$505.00**

Accessories

AME-RCS-12C	Ameritron Automatic Antenna Switch Controller	**$239.95**
AME-DB-13D	Ameritron Cable, RCS-12C to Icom 706/7000/718	**$22.95**
AME-DB-7DI	Ameritron Cable, RCS-12C to Icom ACC2	**$22.95**
AME-DB-7DK	Ameritron Cable, RCS-12C to Kenwood TS-2000/570/870;	**$22.95**
AME-DB-8MK	Ameritron Cable, RCS-12C to Kenwood TS-480	**$22.95**
AME-DB-8DY	Ameritron Cable, RCS-12C to Yaesu 8-Pin Band Data	**$22.95**
DXE-RLY-HP	SPDT 5 kW Sealed RF Relay, Board-Mount	**$9.95**
DXE-RLY-SD	SPDT DM/DB 10 kW RF Relay, Board-Mount	**$19.95**
DXE-CW9S	Shielded Control Wire, 9-Conductor Stranded	per foot **$0.36**

Super Hi-Q Loop Antennas

If you're short on space, but don't want to compromise on performance, look to MFJ's line of Super Hi-Q Loop Antennas. These compact loops have a 36 inch diameter, which means they'll fit in apartments, attics, small lots and RVs. The Hi-Q Loop Antennas include a controller with auto band selection, and no control cables are necessary.

Included with each antenna is MFJ's "Super Remote," which gives you a built-in cross-needle SWR/wattmeter that lets you quickly tune to your exact frequency. The antennas handle 150 watts and, depending on the model, they cover the WARC bands.

MFJ-1786

MFJ-1786	Super Hi-Q Loop Antenna with Remote, 30-10M, 120 Vac	**$419.95**
MFJ-1786X	Super Hi-Q Loop Antenna with Remote, 30-10M, 220 Vac	**$419.95**
MFJ-1788	Super Hi-Q Loop Antenna with Remote, 40-15M, 120 Vac	**$469.95**
MFJ-1788X	Super Hi-Q Loop Antenna with Remote, 40-15M, 220 Vac	**$469.95**

MFJ-57B

Mini-Loop Antenna Kits and Tuners

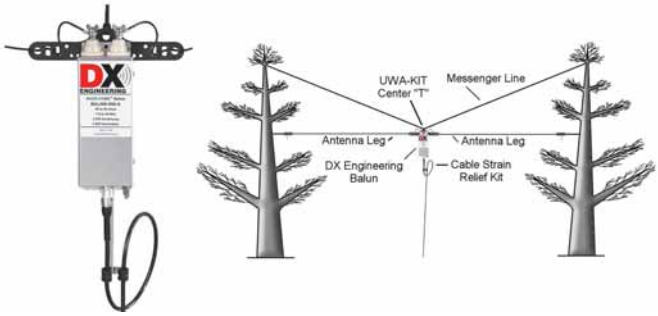
These PVC Cross Loop Antenna kits are the perfect compliment to MFJ's 933/935C/936B loop tuners. The 4.5 x 4.5 foot PVC cross mounts break down to fit in a suitcase or duffle bag—making them perfect for portable multi-band operation.

MFJ-57B	Loop Antenna Kit, 20-15 Meters	**$29.95**
MFJ-58B	Loop Antenna Kit, 60-10 Meters	**$49.95**
MFJ-933	Loop Tuner, 150 Watts, 5.3-30 MHz	**$179.95**
MFJ-935B	Loop Tuner, 150 Watts, Current Meter, 5.3-30 MHz	**$199.95**
MFJ-936B	Loop Tuner, 150 Watts, Current/SWR/Wattmeter, 5.3-30 MHz	**$249.95**

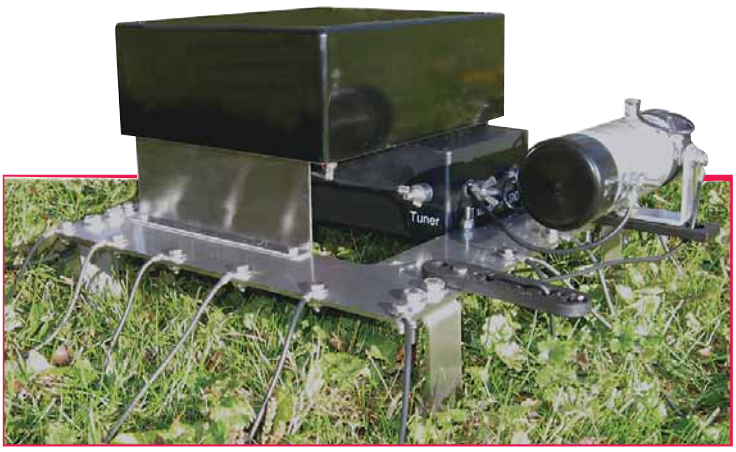
Tech Support: DXEngineering.com/TechArticles

Looking for guidance on your next project?

Need advice to optimize your amateur radio operation? Ask our ham radio experts a tech question, search our huge FAQ archive, or browse our library of technical articles.

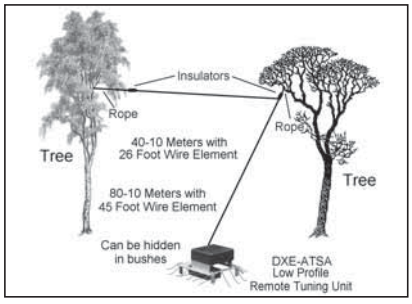


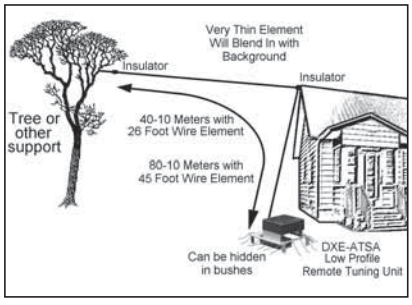
The DXE-BAL050-H05-A 1:1 balun is shown installed with the optional DXE-UWA-KIT Universal Wire Antenna Center-T (U.S. Patent No. 7,764,244) insulator



Auto Tuned Stealth Antenna (ATSA)

Great for EMCOMM—Assemble and Deploy in Minutes!





Do you live in an area where antennas are not allowed? DX Engineering has designed a complete antenna system that allows Amateur Radio operators living under the shadow of HOA-controlled areas to get on the air easily. Even with a short 26 foot wire antenna, you can typically be on the air on all bands 40 meters and up. With only 45 feet of wire you can be on all bands from 80 through 10 meters! That's because the unique ATSA MatchBoxx™ module lets you use almost any length wire—no more "forbidden" lengths as with other end-fed systems.

Most small, physically short antennas exhibit narrow bandwidth, limiting your operating frequency range on the lower bands to 50 to 100 kHz with acceptable SWR. The ATSA's integral auto tuner always delivers the lowest possible SWR at any operating frequency with no operator adjustments necessary. Just change bands and the ATSA antenna will follow you!

The very low profile Remote Tuning Unit [RTU] is easily hidden, even in small bushes or shrubs. Just "plant" the RTU with supplied spikes and lay out the minimum length radials. The only thing visible is the wire antenna element, which can be made from small diameter wire for a near-zero visual impact. You can further camouflage the RTU with a plastic boulder or other items available at most landscaping stores.

The DX Engineering ATSA system is completely self-contained; even the required 12 Vdc power is carried by the coax. The ATSA will automatically match your coax to the antenna at any HF frequency within seconds. The complete system includes the RTU, stainless steel radial plate and hardware, radial wire, antennas wire, and two insulators. It's everything you will need to get on the air and operating right under their noses.

- Automatic bandswitching—tunes for lowest SWR
- Handles 200 watts SSB/CW
- Connect 12 Vdc power and RF through single coax feedline

DXE-ATSA-1	ATSA Multi-Band HF Antenna System	**$489.00**
DXE-SA80-AOK	Stealth Antenna 80M Tuning Coil Add-On Kit	**$49.95**

DIAMOND ANTENNA

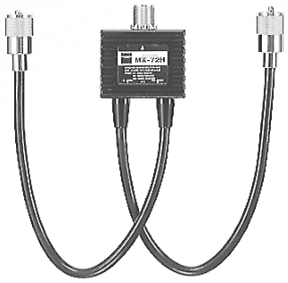
DMN-MX324

DMN-MX3000N

DMN-MX72D

DMN-MX62M

DMN-MX72H



DMN-MX72N

DMN-MX2000

DMN-MX3000

COMET

CMA-CF-4160I

CMA-CF-4160J

CMA-CF-4160K

CMA-CF-4160N

Diamond Duplexers

Part Number	Port*	Frequency	FM	PEP	Loss	Isolation	Mix Connector	Port Connector	Price
DMN-MX62M	LPF HPF	1.6-56 MHz 76-470 MHz	200 W 200 W	600 W 600 W	.2 dB .3 dB	50 dB 50 dB	SO-239	PL-259, 12" 5D Cable PL-259, 12" 5D Cable	**$69.95**
DMN-MX610	LPF HPF	1.3-30 MHz 49-470 MHz	200 W 200 W	600 W 600 W	.2 dB .25 dB	45 dB 45 dB	SO-239	PL-259, No Cable	**$69.95**
DMN-MX72D	LPF HPF	1.6-30 MHz 140-150 MHz 400-600 MHz	400 W 150 W 100 W	1,000 W 400 W 250 W	.1 dB .1 dB .2 dB	60 dB 60 dB 60 dB	SO-239 SO-239	PL-259, No Cable PL-259, No Cable	**$46.95**
DMN-MX72H	LPF HPF	1.6-30 MHz 140-150 MHz 400-600 MHz	400 W 150 W 100 W	1,000 W 400 W 250 W	.1 dB .1 dB .2 dB	60 dB 60 dB 60 dB	SO-239 SO-239	PL-259, 12" 5D Cable PL-259, 12" 5D Cable	**$49.95**
DMN-MX37	LPF HPF	1.6-470 MHz 900-1300 MHz	—	100 W 50 W	.25 dB .45 dB	45 dB 45 dB	Type N Female	PL-259, 12" 5D Cable Type N Male, 12" 5D Cable	**$59.95**
DMN-MX72N	LPF HPF	1.6-30 MHz 140-150 MHz 400-460 MHz	400 W 150 W 100 W	1,000 W 400 W 250 W	.1 dB .1 dB .1 dB	60 dB 60 dB 60 dB	SO-239 SO-239	PL-259, 12" 5D Cable Type N Male, 12" 5D Cable	**$49.95**
DMN-MX72A	LPF HPF	1.6-30 MHz 140-150 MHz 400-460 MHz	400 W 150 W 100 W	1,000 W 400 W 250 W	.1 dB .1 dB .1 dB	60 dB 60 dB 60 dB	Type N Female Type N Female	PL-259, 12" 5D Cable PL-259, 12" 5D Cable	**$54.95**

Diamond Triplexers

Part Number	Port*	Frequency	FM	PEP	Loss	Isolation	Mix Connector	Port Connector	Price
DMN-MX324	LPF BPF HPF	1.6-150 MHz 220-225 MHz 400-550 MHz	400 W 300 W 250 W	800 W 600 W 500 W	.3 dB .4 dB .4 dB	40 dB 40 dB 40 dB	SO-239	PL-259, 12" 5D Cable PL-259, 12" 5D Cable PL-259, 12" 5D Cable	**$89.95**
DMN-MX2000	LPF BPF HPF	1.6-60 MHz 110-170 MHz 300-950 MHz	400 W 400 W 250 W	800 W 800 W 500 W	.15 dB .2 dB .25 dB	60 dB 60 dB 60 dB	SO-239	PL-259, 12" 5D Cable PL-259, 12" 5D Cable PL-259, 12" 5D Cable	**$83.95**
DMN-MX2000N	LPF BPF HPF	1.6-60 MHz 110-170 MHz 300-950 MHz	400 W 400 W 250 W	800 W 800 W 500 W	.15 dB .2 dB .25 dB	60 dB 60 dB 60 dB	SO-239	PL-259, 12" 5D Cable PL-259, 12" 5D Cable Type N Male, 12" 5D Cable	**$79.95**
DMN-MX3000	LPF BPF HPF	1.6-160 MHz 350-500 MHz 850-1300 MHz	400 W 200 W 100 W	800 W 400 W 200 W	.2 dB .3 dB .4 dB	55 dB 55 dB 55 dB	Type N Female	PL-259, 12" 5D Cable PL-259, 12" 5D Cable Type N Male , 12" 5D Cable	**$79.95**
DMN-MX3000N	LPF BPF HPF	1.6-160 MHz 350-500 MHz 850-1300 MHz	400 W 200 W 100 W	800 W 400 W 200 W	.2 dB .3 dB .4 dB	55 dB 55 dB 55 dB	Type N Female	PL-259, 12" 5D Cable Type N Male, 12" 5D Cable Type N Male , 12" 5D Cable	**$85.95**

Comet Duplexers

New!

Part Number	Port*	Frequency	PEP	Loss	Isolation	Mix Connector	Port Connector	Price
CMA-CF-4160I	LPF HPF	1.3-170 MHz 350-540 MHz	800 W 500 W	.1 dB .2 dB	60 dB 60 dB	SO-239	UHF Male, PL-259 Type N Male	**$48.95**
CMA-CF-4160J	LPF HPF	1.3-170 MHz 350-540 MHz	800 W 500 W	.1 dB .2 dB	60 dB 60 dB	SO-239	UHF Female, SO-239 UHF Female, SO-239	**$53.95**
CMA-CF-4160K	LPF HPF	1.3-170 MHz 350-540 MHz	800 W 500 W	.1 dB .2 dB	60 dB 60 dB	SO-239	UHF Male, PL-259 UHF Male, PL-259	**$48.95**
CMA-CF-4160N	LPF HPF	1.3-170 MHz 350-540 MHz	800 W 500 W	.1 dB .2 dB	60 dB 60 dB	Type N Female	Type N Female Type N Female	**$58.95**
CMA-CF-416A	LPF HPF	1.3-170 MHz 350-540 MHz	800 W 500 W	.1 dB .2 dB	60 dB 60 dB	SO-239	PL-259 PL-259	**$49.95**
CMA-CF-416B	LPF HPF	1.3-170 MHz 350-540 MHz	800 W 500 W	.1 dB .2 dB	60 dB 60 dB	SO-239	PL-259 Type N Male	**$49.95**

*LPF: Low Pass Filter, BPF: Band Pass Filter, HPF: High Pass Filter